

**FGDC Ground Transportation Subcommittee
Responses to Public Review
Of
NSDI Transportation Identification Standard**

Important: Public Reviewers have until 06/28/02 to respond

The Subcommittee has completed its initial public review and response for the National Spatial Data Infrastructure (NSDI) Transportation Identification Standard. The Subcommittee is posting the Federal Geographic Data Committee (FGDC) **review form** containing comments from public reviewers, the response from the Technical Review Panel, and the Subcommittee.

The following is a brief summary of Subcommittee activities concerning the Standard's development. The Standard's public review period concluded July 2001. The Subcommittee compiled all comments from the public reviewers and appointed a Technical Review Panel (participants were selected from outside the Subcommittee) to respond to each comment and make recommendations for action to the Subcommittee. The Panel held a two-day meeting in January 2002 and completed their review and prepared responses to each comment. The Subcommittee then conducted its review of the Panel's recommendations and responded. All comments and responses, from all three groups, are recorded in the **review form**.

What's next? The Subcommittee is posting this information so the original public reviewers (second column of the review form) can respond to the Subcommittee's action regarding their comments. Reviewers have until June 28, 2002 to respond. After this date the Standard will be modified to incorporate changes. Please send your response to Mark Bradford. If you have any questions, please contact Mr. Bradford at mark.bradford@bts.gov or 202-366-6810.

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|---|--------------|-----------------------------------|--------------------------|--------------------|--|-----------------|--|---|
| | | | | | <p>Five general responses by the Review Panel and Subcommittee are as follows:</p> <ol style="list-style-type: none"> 1. Accepted – The changes in wording recommended by the commenter have been incorporated into the final standard document. Responses in this category should specifically identify where in the standard the recommended changes have been made. 2. Accepted in Principle – The standard has been modified to meet the intent of the changes recommended by the commenter, but either the commenter provided no specific change, or the changes recommended by the commenter were revised for added clarity or grammatical reasons. Responses in this category should identify where in the standard the changes have been made. 3. No Recommended Change – No changes have been made to the standard in response to the comment, because the commenter made no specific recommendations for change. 4. Not Accepted – No changes have been made to the standard in response to the comment, because the review panel, by consensus vote, disagrees with the comment itself or the recommendation proposed by the commenter. Responses in this category should explain the review panel's reasons for its decision. 5. Out of Scope – No changes have been made to the standard in response to the comment, because the review panel, by consensus vote, has determined that the comment either is not relevant to, or is beyond the specific scope of the standard itself. <p>The number appearing in the response columns (last two columns of this form), for each comment, corresponds to the numbers from the above list. The Technical Review Panel is responding to the commenter, and the Subcommittee is responding to the Review Panel. References to specific comment numbers are using the row numbers appearing in the first column of this form.</p> | | | |
| | | | | | <p>(Note to editor) NTE #1: The panel suggests changing the title of Appendix C from "Implementation Procedures" (ex. "Implementation Examples".) Also change all instances of "should ..." to "could..." Moreover, the entire Part III must be re-evaluated so that recommendations are valid, particularly in the light of user comments below. Examples should support decision points in the application of the standard, and should be consistent with the standard.</p> | | | |
| | | | | | <p>NTE #2: Rewrite and move Appendix C/1.9 into Part II.</p> | | | |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|---|--|-----------------------------------|--------------------------|--------------------|---|--|--|--|
| 1 | Wisconsin Department of Transportation (WisDOT) – 1 | | | G | <p>In order for the implementation of this standard to be successful, agencies that share the same geographic extent or border each other will need to engage in potentially significant efforts involving: coordination; communication; cooperation; and sharing.</p> <p>For instance, there are 72 counties and over half a dozen RPCs and MPOs in Wisconsin and Wisconsin borders four other states. Even if only a handful of counties decide to implement this along with WisDOT, the level of effort to develop/manage agreements, rules, and to coordinate activities may be cost prohibitive to many agencies. The worst case scenario would involve a state DOT, county, RPC, E-911 agencies representing the same geographic extent and bordering another state. The resulting effort to make this workable may be overwhelming.</p> <p>More specific comments regarding this are included below.</p> | Conduct testing on the practicality of the guidelines for implementation. Survey potential users of this proposed standard on concerns regarding this, then address appropriately. | 5 – testing underway but comment is out of scope. (Other – post on web where people or groups are using or trying to implement the Standard). | 1 – No one is required to implement this standard. The problem cited by the reviewer applies to any serious attempt to share geographic data. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|---|--------------|-----------------------------------|--------------------------|--------------------|--|--|--|--|
| 2 | WisDOT – 2 | | | G | This proposed standard may be suitable for data sharing, but in the experience of WisDOT in maintaining a model conceptually similar, some of the proposed implementation guidelines may result in unnecessary maintenance issues if this model is used as an agency's road data model. More specific comments regarding this are included below. | Market this proposed standard as more of a data-sharing standard than a road data model for storing and maintaining a Location or Linear Reference System. | 5 – Panel recommends looking into the marketing of the Standard. Document will be reviewed to clarify scope. Re-edit document make paragraphs more concise. | 1 – This standard is a data-sharing standard not a road data model. |
| 3 | WisDOT – 3 | | | G | Given the dynamics of transportation systems, WisDOT does not expect this proposal to provide 100% data sharing capabilities. While it should provide better data sharing capabilities than traditional conflation can, the lag time between real-world events and update of database is an unresolved issue. The reality of transportation data maintenance is that real-world events occur more frequently and continuously in comparison to other data with which NSDI frameworks standards address. (Also refer to comment “WisDOT - 1”) | Stress the fact that the quality of any data sharing is directly proportional to the upkeep and timeliness of the data. | 3 – The wording in 1.1.5 and 1.1.7 already addresses issue. Proposed change lacks specificity. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|---|--------------|-----------------------------------|--------------------------|--------------------|--|--|--|--|
| 4 | WisDOT – 4 | | | G | <p>Has the proposed standard been tested to date? Specifically for: level of effort to implement; completeness of standard; level of effort to share data; and level of effort to maintain (transactions).</p> <p>The guidelines for implementation in Appendix C & D have only the simplest of examples. How do the proposed table formats and implementation guidelines adequately accommodate more complex scenarios?</p> | Add additional examples that better reflect real-world transactions. | 2 – See panel’s response to comment #1. It is recommended that an introduction be introduced that explains the appendix as being informative. The panel will provide example tables for this. The panel also recommends examining ways to catalog real examples of implementing the standard. (Perhaps put into the documentation how standard implementers could share information.) | 4 – Possible examples not recommended by reviewer or panel. |
| 5 | WisDOT – 5 | | | G | <p>The use of one Date field and a Status field are inadequate to properly support the use historical and proposed data. Is it the intentions of this proposed standard to support temporal capabilities? What aspects of historical and proposed data does this proposed standard attempt to address? (Also see comment “WisDOT - 13”)</p> | | 2 – Explain the use of date in record ID field. Records are to be viewed as transactions and date is the time the record is created. Explanation should be added to the documentation that states this is a transactional database. | 1 – Clarify that “Status” refers to state of physical feature represented by the data record. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|---|--------------|-----------------------------------|--------------------------|--------------------|--|---|--|---|
| 6 | WisDOT – 6 | | | G | <p>The Implementation Procedures (Appendix C) and Examples (Appendix D) list many implementation rules and examples. Often it is unclear whether these are just an example, a recommendation, best practice, or mandatory.</p> <p>Some of the examples may not be the best implementation choice for a given agency.</p> <p>It should be noted that many authorities may not have had implementation or long- term maintenance experience with such a data model, and by following the examples and implementation guidelines in Appendix C & D verbatim may cause a higher implementation cost and maintenance effort than is necessary. It has been WisDOT's experience that this may ultimately lead to the data in the model not being maintained due to the level of effort involved.</p> <p>See additional comments below.</p> | <p>First: Clarify Appendix C & D whenever a suggestion is: mandatory; a recommendation; best practice; or just an example.</p> <p>Second: It may also be beneficial to include table values as they relate to the example figures so that authorities can get a better sense of what and how the data needs to be changed.</p> <p>Third: Any implementation guidelines need to take into account the level of effort to maintain the data in the model.</p> | <p>First change 4 – Second change 4 – Third change 5 –</p> <p>Definitions of guidelines are simple examples, not mandatory or recommendations of best practices. The standard should be supported by certain activities – like a website discussed in comment #1. Appendix C and D are examples not requirements.</p> | 1 – |
| 7 | NYSSDCW-13 | N/A | N/A | G | <p>In order for users to comply with this standard, most of the editing rules will need to be automatically applied by the editing software. The success of this standard will depend heavily on how well it is embraced by the software vendors.</p> | - | <p>5 – This is an implementation issue. The implementer will want vendor support but this doesn't affect the standard. The standard, per FGDC requirements, was created to be independent of vendor software and not tied to current technology.</p> | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|---|-----------------------|-----------------------------------|--------------------------|--------------------|--|--|--|---|
| 8 | Mn/DOT- Olmstead-1 | | | G | Mn/DOT is supportive of this standards effort and intends to assume the responsibilities of a Framework Transportation Data Authority. We believe our data structures will permit us to provide data that largely conforms to the standard. (We are uncertain about our ability to meet the Intermediate-Point and Equivalence requirements. See comments #5 and #9 below.) | | 3 – Support for the standard is appreciated. | 1 – |
| 9 | Bentley-0 | | | G | You are careful to distinguish the proposed framework from a linear datum (as proposed by NCHRP 20-27(2)). Yet, you advocate layering networks, cartographic representations and LRM traversals on top of your framework, as one would layer these onto a linear datum. For States, which decide to develop a linear datum, how do you propose relating it to your framework? Is the framework mapped onto (or generated from) the linear datum? What happens to the other layers? How does the State maintain consistency between the linear datum and the framework, especially without duplicating edits. | Synthesize the concepts of (NSDI) framework with (NCHRP) linear datum and revise this standard to propose the net result as a single layer for States to maintain. | 4 – This is not a linear datum. It can be generated from a linear datum however. State agencies may assign authority. | 1 – The standard was designed to be consistent with the principles of a linear datum (as defined in NCHRP 20-27) without requiring accurate linear measurements. This allows flexibility for those agencies that don't want to create a linear datum at this time. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|--------------------------|--------------------|---|-----------------|--|---|
| 10 | GDT-1 | | | G | <p>There are at least two general approaches to the issue addressed by this standard: one is to define a naming standard like this one, and the other is to build and maintain a “Rosetta Stone” database to translate between various identification representations, including postal street addressing and varieties of geographic coordinates. While a naming standard is an attractive ideal, it does require everyone to adopt and use it in order for it to function. This is a burden, which may make this approach unattractive to most potential users. The Rosetta Stone approach does require a competent and trusted steward, but imposes no burden on operational agencies other than submitting an initial definition of and updates to their naming scheme. In a sense, the proposed Transportation ID standard is reminiscent of Esperanto, a wonderful ideal, well defined, but in the span of 114 years only adopted by .03% of the people on earth.</p> | | <p>3 – The panel agrees with the establishment of a Rosetta stoned. The standard might constitute the first step in developing the Rosetta stone.</p> | <p>1 –</p> |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|---------------------------|--------------------|---|-----------------|---|--|
| 11 | GDT-3 | | | G | Several mentions of topology are made in the document. One example is in 2.2.3. Topology is apparently taken to mean connectivity of nodes and links. This is only one half of the story, however; topology also describes adjacency of the 2-cells that are defined by links (1-cells). Ignoring this part of the topology picture leads to corrupting its representation. There must be a distinction between topology of the physical road network, which may not allow turns at an overpass, and the topological line network encoded in a database, which must represent the over- and under-pass lines intersecting, in order to preserve and represent the adjacency of two-cells. In other words, mathematical topology must determine node placement; whether or not a given turn is physically possible at a node is a subservient fact that should be stored somewhere as attribute information. | | 4 – FTRP may exist at any user-defined location including non-navigable intersections. Section 2.2.3 also states that it is not topological. | 1 – Term “Topology” may be inappropriate. What is meant is network connectivity. The needs of many network application do not require full planar topology and the ID standard tries to provide an alternative to this geospatial constraint. Review document for mentions of Topology and change as appropriate. |
| 12 | FGDC-0 | Title page | | T,E | List of FGDC member agencies omits HHS | Add HHS | 1 – | 1 – |
| 13 | FGDC-1 | p. i | 2 nd paragraph | T,E | Description of FGDC omits HHS | Include HHS. | 1 – | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--|-----------------------------------|--------------------------|--------------------|---|--|--|---|
| 14 | Idaho Transportation Technical Working Group* (IT2WG), Inc. | 1.1.1 | Lines 4 -10 | G | The opening paragraph both very succinctly states part of the problem and then helps to perpetuate it. The Title of the document refers to an “IDENTIFICATION STANDARD”, yet the second sentence refers to standardizing “terminology to describe”-- “Much of this confusion results from the inconsistent use of terminology to describe transportation features and their representations.” For example, throughout the standard itself, the word “network” is used inconsistently in different ways and inappropriately at different levels of abstraction (e.g., see lines 7 “analytical networks” and 18, “linear networks”). Also, standardizing how transportation features are “described” for business analysis is not the same as standardizing how they are “identified” and referenced for the purpose of data sharing. Until we are certain that we are identifying and referencing the same objects in the real world, how we describe them is, ipso facto, irrelevant. The data used to identify and reference objects must be kept conceptually separate from the data used to describe objects for business purposes. As the phrase “analytical network” denotes, networks exist at the analytical, i.e., application level. Therefore they should not be used to identify and | The NSDI “Framework Transportation Identification Standard” should seek to standardize only how transportation features are identified and referenced, not how they are described for analytical purposes. Standardizing descriptive attribute data—including analytical network representations—is very important, but should be the subject of a complimentary effort. This proposed Standard for identifying road segments should concern itself primarily with identification [for referencing], not description [for analysis]. | 2 – The panel recommends reviewing the document for passages that may be misleading to readers. The document should also be reviewed for sentences that imply going beyond the scope of the standard. The panel recognizes that terms can carry subjective meanings, and in those instances where a specific meaning is intended it should be defined. When a more general meaning is intended the document will define it for the reader. Wording will be revised to reflect specific meanings or reworded to clarify ambiguous meanings. The panel also recommends a re-write of section 2.2 lines #394 and #395. | 1 – Except for reference to section 2.2. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-------------------------------|--------------------------|--------------------|---|--|--|---|
| 15 | IT2WG -2 | 1.1.2 | Lines 14 - 16 | T | <p>“Spatial” data is just one (1) kind of data or data type. The word “spatial” implies that spatial data is somehow fundamentally different from other kinds of data. Scientific Researchers are and always have been keenly and acutely aware that data is data; and sharing data—any kind of data, spatial or otherwise—requires that both the supplier and the recipient understand what the data is “intended” to represent in terms of the real world, i.e., does the data in question—spatial or otherwise—accurately and validly represent reality.</p> | <p>Drop the word “spatial”; insert the word “intended”; and drop the phrase “real-world features”. Rewrite as follows: “A fundamental requirement of data sharing is that both the supplier and the recipient understand what the data is intended to represent in terms of the real world. This is no less true for spatial data as it is for other types of data.”</p> | <p>2 – The panel recommends that “spatial” be removed but sentence not replaced in section 1.1.2.</p> | <p>1 –</p> |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|--------------------------|--------------------|---|--|--|---|
| 16 | IT2WG -3 | 1.1.2 | Lines 17-20 | G | Having “no universally agreed upon standard for partitioning” roadways and other transportation system components “into unique segments” <i>is</i> the problem. However, even though the statement that “Each developer.... partitions the” transportation system “to meet his or her specific application needs” is a valid historical generality, <i>it is not absolutely true</i> . There are referencing systems currently in use (e.g., at ITD) that partition the transportation system logically according to a given segment’s homogeneously spatio-temporal existence in the real world—i.e., segmentation is not based on <i>any</i> application specific attribute— specifically for the purpose of enabling and facilitating data integration and sharing, and at the same time allowing for and encouraging the further partitioning of segments according to their descriptive attributes to meet “specific application needs”, including network analysis. | The FGDC should investigate existing mature referencing systems (e.g., ITD’s LRS, Michigan’s LRS, etc.) that already do what they are seeking to accomplish, to see if any of the existing systems can be [easily] expanded to meet the needs of the FGDC, the NSDI and the rest of the country before continuing with the current effort. | 4 – This is generic standard and cannot be tied to a specific segmentation method. Independent jurisdictions may decide to perpetuate systems currently in place. This is not a standard for segmentation it is a standard for naming segments. | 1 – The standard does not preclude the use of any segmentation method. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|-----------------------|-----------------------------------|-------------------------------------|--------------------|---|--|---|--|
| 17 | Mn/DOT- Olmstead-2 | 1.1.2 1.1.3? 1.3.2 | Lines 18-20 Line 28? Line 234 | T | “Network” and “networks” are used imprecisely here. Appendix A defines the term as a link-node representation of an object (the transportation infrastructure). Here the term is used for that object itself. | Substitute “However, there is no universally agreed upon standard for partitioning the transportation system (infrastructure?) into unique ‘segments,’” for the sentence in lines 17-19. Strike “network” after “transportation” in line 19. Substitute “transportation system” or “transportation infrastructure” for “network” in line 20. Substitute “transportation systems” for “network layers” in line 234. | 2 – The panel recommends reviewing the lines identified by the commenter (lines #18 to #20). The panel’s further discussion on this issue can be found in the panels response to comment #14. This standard is not intended to provide a mandatory segmentation scheme, but is intended to provide a public key identifier. The standard’s use of “network” is generic and not intended to represent topological connectivity. The definition in section 1.1.3 is used by FGDC to define the FGDC Ground Transportation Subcommittee. Line #28 will not be changed. No changes will be made to line #234 as this is beyond the scope of the panel. | 1 – Further, the subcommittee agrees with MN recommended sentence change for line #17 to #19. |
| 18 | FGDC-3 | P3 | Line 34&36 | G | Who are the “non-federal” community? | Use inclusive words, say explicitly who you mean like state, local, & tribal governments private sector organizations etc... | 4 – Identified wording are quotes from official FGDC documents. | 1 – |
| 19 | FGDC-2 | P3 | Line 43 | T, G | Are you saying that framework data must be available at little or no cost and free from restrictions on use? Proposed Change: Delete last part of sentence “at little....use” Or see framework guide book page 29 and 30 for better language to use like: CONTINUED -> | Charges for access to framework data are limited to the cost of providing access and dissemination. Practices that restrict accessibility or place restrictions on the use of framework data must be avoided. | 5 – This question is being forwarded to the Subcommittee for response. | 1 – Subcommittee will adopt changes recommended by reviewer. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|--------------------------|--------------------|--|---|---|--|
| 20 | WisDOT - 7 | 1.1.7 | Lines 128, 129, 130 | T | While most GIS software packages do not natively distinguish between an instance of a linear geo-spatial feature and its representation in a topological network, most GIS software packages can be customized to do this. | Refine this sentence based on comment provided. | 2 – The panel recommends the following changes be made based on comment: (a) paragraph from lines #128 to #135 be deleted. (b) Make modification to section 1.1.2. | 1 – |
| 21 | WisDOT - 8 | 1.1.7 | Lines 128, 129, 130 | G | Is this proposed standard for the sharing of transportation system data between databases stored in GIS software package format, or it is for the sharing of transportation system data regardless of software? | Better articulate in this proposed standard what the intended scope. | 2 – The standard is not designed for a GIS software package. The panel recommends that the reference to GIS software be eliminated. | 1 – |
| 22 | GDT-6 | 1.1.7 | | G | Shouldn't the private sector be listed as a potential participant in creating the NSDI framework transportation layer? | | 5 – Panel refers comment to Subcommittee for clarification. | 1 – Subcommittee will add “private sector” to the identified lines. |
| 23 | GDT-7 | 1.1.7 | | T | (Line 105, ff) Experience at GDT suggests that conflation is an extremely valuable (if complicated) technique for building and improving transportation databases. We don't find anything about it “unacceptable”. | | 3 – The “range of variability” described in line #108 is unacceptable not conflation. | 1 – |
| 24 | NYSSDCW-1 | Pg. 8 | Lines 128-130 | G | This needs clarification. Some GIS software has structures that can handle this (such as “routes”) | Add another line. | 2 – See Panel's response to comment #20. | 1 – |
| 25 | WisDOT - 9 | | | G | Intentionally left blank. | | 5 – | 1 – |
| 26 | FGDC-4 | P.11 | Line1169 | T, G | Section 1.2.2 doesn't specify a Horizontal Datum | Suggest: North American Datum of 1983 be explicitly stated as the horizontal datum perhaps as a separate section. | 2 –Panel suggest WGS84 be used but also suggest that the Subcommittee contact NGS (Dave Doyle) to discuss potential problems. | 2 – Subcommittee will add two lines to the point table that will allow user to specify the horizontal and vertical datum. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|--------------------------|--------------------|--|---|---|---|
| 27 | NYSSDCW-2 | Pg. 11 | Line 174 | T | Incorrect information | Switch East and West (switch heading to West) | 1 – | 1 – |
| 28 | IT2WG-4 | 1.2.2 | Lines 174-175 | T | While the United States falls entirely within the Western Hemisphere, conventional notation is for west longitudes to be represented as a negative number. Some geographic programs will not function correctly using positive west longitudes. I do not know whether this is addressed in ANSI X3.61-1986. | Change line 174 as follows: through 180. [Positive] Negative numbers indicate West longitude; [negative positive] numbers indicate East | 1 – See panel’s response to comment #27. | 1 – |
| 29 | FGDC-5 | P.12 | Line 199 | G | How will the development and assignment of unique segment identifiers facilitate exchange? Can you give a simple example? | Use an example or better explain the importance of unique segment identifiers. | 2 – Panel recommends the paragraph be changed to reflect comment. | 1 – |
| 30 | FGDC-6 | P.14 | Line 224 | T,G | How will you test compliance to this standard? | More guidance on compliance needed. Perhaps a separate section. | 5 – Panel refers comment to Subcommittee for action. | 1 – Conformance testing is presented in section 1.9 of the Transportation ID Standard. |
| 31 | FGDC-6 | P.14 | Line240 | T, G, E | “The user of this document need not follow the guidelines to be in conformance with this standard” This is confusing. What is conformance? | Delete or re-write to tell us what the user must do to be compliant. | 4 – Section 1.3.2 states how the user will achieve conformance to this standard. | 4 – Subcommittee agrees in principle to reviewers comment. Part III refers to technical appendices and examples. Lines #237 to #241 will be revised accordingly. |
| 32 | GDT-4 | 1.2.2 | | T | Suggest you reconsider the specification of west longitude being positive. This contradicts all practice in worldwide GIS usage. The dominant convention is that west longitude is negative. Despite the 1986 ANSI specification, you risk marginalizing this standard by adopting a coordinate convention that nobody else follows. | | 1 – See panel’s response to comment #27. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|--------------------------|--------------------|---|-----------------------------------|--|--|
| 33 | GDT-2 | 1.3.3 | | G | The proposed standard does not have widespread applicability for commercial database developers. The authors have chosen to make FTSegs as large as is reasonably possible, and consequently to minimize the number of FTSegs. This design requires use of offsets to identify intermediate points of interest. GDT does not understand why this complexity has to be introduced. A number of our customers are requesting point and line-segment identifiers to facilitate transactional update to street databases. To work for our customers, these id schemas must identify points and segments with a finer level of granularity than what is proposed. A useful scheme would look much like the TIGER node/segment one. Any scheme utilizing offsets is unusable to our commercial customer base. | | 4 –The panel made the following observations: (a) Standard does not say what commentator states, (b) commenter makes no recommend change, and (c) the standard fully supports what the commenter says to. The standard supports offsets but does not require them. | 1 – |
| 34 | GDT-8 | 1.3.4.1.1 | | G | The statement about SDTS as being of significant interest is not borne up by our experience at GDT. We do not know of a single commercial user of GIS and road databases who has ever inquired about SDTS. | | 2 – The Panel recommends that word “significant” be struck from section 1.3.4.1.1. The panel also recommends reviewing section 1.3.4 for relevance, accuracy, possible movement to appendix, and to support further changes to it over time. Finally, the panel recommends that a sentence under 1.3.4 be added describing standards that may be of relevance to this standard. | 1 – However, Section 1.3.4 is required by FGDC to be in the body of the Standard. |
| 35 | Bentley-1 | 1.3.4.2.2 | 352 | T | GDF is about to become an International standard. US | Change first “is” to “originated” | 1 – See panel’s response to comment #34 | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|-------------------|-----------------------------------|--------------------------|--------------------|---|--|--|--|
| | | | | | TC204 (ITS) experts have been contributing to the effort of making it applicable here as well as in Europe. FHWA has indicated that they will enforce adherence to ITS standards on projects with Federal funding. | | comment #34. | |
| 36 | Mn/DOT-Olmstead-3 | 1.3.4.2.2 | Lines 352-362 | G | The discussion of GDF gives information about the status and use of that standard. It does not address consistency or conflicts between GDF and this standard. | Expand this section to describe consistency and/or conflicts between GDF and this standard. | 1 – See panel’s response to comment #34. | 2 – Subcommittee will refer this to technical writer. |
| 37 | Bentley-2 | 1.3.4.2.2 | 359-361 | T | GDF is about to become an International standard. US TC204 (ITS) experts have been contributing to the effort of making it applicable here as well as in Europe. FHWA has indicated that they will enforce adherence to ITS standards on projects with Federal funding. | Replace paragraph with: “The Committee Draft of GDF version 4.0 has been released and issued to ISO for voting. ITS and ISO standardization is anticipated in 2001.” | 1 – See panel’s response to comment #34. | 1 – See comment #36. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|--------------------------|--------------------|---|--|--|---|
| 38 | IT2WG-5 | 2.2 | Lines 388-397 | G | After reading the remainder of the standard, it is clear that the issues enumerated in this paragraph have not been successfully addressed. First, representing real world transportation features only in terms of links, nodes and connectivity has extremely limited utility, especially at the local level. Second, graphically depicting a link-node schema is an analytical diagram; it is NOT a map. Maps show the shape of features in the real world as well as their relationships to other shapes in the real world. Adequate mapping requires much more than straight-line diagrams and connectivity. Third, the only kinds of network applications this standard appears to support are those analogous to the first three examples listed on Line 395. It has not been demonstrated how this standard will support day-to-day transportation infrastructure management (highway facility management). | Go back to the drawing board. If the goal here is to have state and local entities to buy into this standard, then it needs to be more in line with standard modeling principles: it must be <i>parsimonious</i> ; it must be <i>simple</i> (the rule of Occam's razor); and it must have <i>utility</i> . In its current form, this standard only meets a very specific part of the "utility" principle—that having to do with routing applications. These three principles form the philosophical, operational and practical basis of formal modeling and theory construction (see for example the work of Johnathon Turner, Jane Sell or Lee Friese). Or, alternatively, the Standard's focus could be narrowed appropriately to address only networking/routing applications. | 2 – The panel recommends reviewing section 2.2 for relevance, brevity and redundancy with other sections. | 4 – Reviewers comment is out of scope. However, the Subcommittee will review section 2.2 as stated by panel. |
| 39 | FGDC-7 | P24 | Line404 | T | What are "GPS coordinates?" this is very ambiguous | Suggest: "GPS Observations" | 2 – Panel recommends deleting example. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-------------------------------|--------------------------|--------------------|---|--|--|--|
| 40 | FGDC-8 | P25 | Line 416-427 | T,G | <p>This section is poorly written. There is a one to one correspondence between geographic coordinates and plane coordinates, thus there is no error in going from one system to the other as implied by these paragraphs.</p> <p>Proposed Change: Suggest: Planar coordinates define the location of geographic coordinates on a two dimensional plane. These coordinates are an exact one to one transformation of geographic coordinates. All coordinate locations are subject to positional errors. CONTINUED -></p> | <p>Thus there are differences in coordinates for the same location. Furthermore, plane map projections distort the real world to make it flat thus introducing known distortions. This standard does not attempt to address these matters.</p> | <p>2 – Panel recommends rewriting section 2.2 for greater simplification. It is further recommended that section 2.2.1 be merged with section 2.2 and 2.2.2 into 2.2.3.</p> | <p>1 – Subcommittee agrees that Section 2.2 should be reviewed.</p> |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|--------------------------|--------------------|---|---|--|---|
| 41 | IT2WG-6 | 2.2.3 | Lines 428-35 | T | <p>Not all transportation system analysis requires topology and analytical networks. And not all network analysis uses “links and nodes”. Networks are composed of subsets of transportation system components; and since multiple networks can be extrapolated from a single transportation system, networks are application specific. Because of this, networks are inadequate as basic referencing objects.</p> <p>Proposed Change: This is an “Identification” standard. Identifying and referencing transportation system components for the purpose of data sharing has nothing necessarily to do with which parts of the identified and referenced system components make up this or that analytical network or have any particular topological characteristics. CONTINUED -></p> | To meet the widest possible range of potential applications, the Standard must be completely application independent. Therefore, the Standard should refer to roadways [as well as railways, waterways, runways, etc.] as <i>transportation systems or transportation system components</i> , not as [application specific] networks. | 2 – See panel’s response to comment #40. | 1 – However, Subcommittee believes reviewer’s comments are out of scope. |
| 42 | Bentley-3 | 2.2.3 | 439-440 | T | Network layer should not be mandatory. | Insert “either directly or” after “segments” and strike “on which these application layers were built.” | 2 – See panel’s response to comment #40. | 1 – |
| 43 | FGDC-9 | P.26 | Line1440, 441 | E, G | “Geometric shape is not. ...without coordinates”. | Delete these two lines they are not needed | 2 – See panel’s response to comment #40. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|-----------------------|-----------------------------------|--------------------------|--------------------|--|--|--|---|
| 44 | Mn/DOT- Olmstead-4 | 2.2.3 | Lines 436-451 | T | This section incorrectly suggests that a network is required to enable transportation application layers such as identified routes, linear referencing methods, and linear events. A route, LRM, or linear event may consist of an ordered set of links, but it might also be built as an ordered set of FTSeg, Anchor Sections, or even other routes, LRM base segments, or linear events. Transportation application layers can be built upon any base set of segments. Topology in those segments is very helpful in building an application layer, but it is not required. | Divide this paragraph and rewrite to add a separate section/paragraph dealing with application layers. The sentence beginning at line 449 belongs in the network section. The concepts in the sentences beginning on lines 440 and 441 belong in both sections. The rest belongs in the application layer section, revised per my comment in the adjacent box. | 2 – See panel's response to comment #40. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|--------------------------|--------------------|---|---|---|---|
| 45 | IT2WG-7 | 2.3 | Lines 452-879 | G | <p>The first three (3) tables—points (nodes), segments (links) and connectivity (topology) indicate that this ID standard is nothing more than a link-node schema. Link-node schemas—like this one being proposed—have very limited utility for agencies and organizations charged with day-to-day management of transportation infrastructure. Efficient and effective transportation infrastructure management requires much, much more than links, nodes and topology. They require data—whether tabular or graphic—that realistically represents, describes and symbolizes the real world in both time and space. A one-size-fits-all link-node schema is inadequate to this task.</p> <p>Proposed Change: Only two tables are required to adequately represent roadways and their topology: a segment table; and a point attribute table (the point IDs are part of the Segment ID table). Using a two or three digit numeric code, the point attribute table identifies the type of intersections—e.g., 32=three-way approach from left—as well as the segment ID and spatial reference point of the roadway being intersected (connectivity/topology); CONTINUED -></p> | and it also identifies different types of bridges (overpasses and underpasses that don't provide connectivity), culverts, overhead and underground utility lines, railways (at grade crossings), inter-modal transportation facilities, run-away truck ramps, passing lanes, maintenance/emergency crossovers (for divided highways), POEs, ATRs, hospitals, etc., etc. | 4 – The panel made the following observations: (a) The standard is not a data model. (b) The objective of intermediate nodes cannot be met with only two tables. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|--------------------------|--------------------|--|--|---|--|
| 46 | FGDC-10 | P.29 | Line 469 | T | <p>Mixing horizontal accuracy and measurement method is problematic. For instance source method includes some type of implied accuracy, which may or may not be true. Separate accuracy and method codes should be developed. Perhaps use a letter code for method type that does not differentiate between different implied accuracies.</p> <p>Furthermore it sounds like the accuracy codes that you are using are estimates about what you have? What about data you have tested according the spatial data accuracy standard how do you report that? In terms of GPS measurements why are there six different methods? The GPS method is readily deduced from the accuracy.</p> | <p>This section needs to be split into Estimated Horizontal Accuracy. And into a simple data collection method code. Decouple accuracy and method. Perhaps include a code to indicate if data has been tested to meet the stated accuracy or just estimated.</p> | <p>1 – The panel recommends redefining the table starting on line #469 to reflect only horizontal and vertical measurement. Strike references to accuracy from lines #469 and #472 and strike accuracy from table title. The also suggest the following changes be made to the table. All xx references in the previously identified two fields be removed. The panel suggests that measurement methods be user defined and be described in a textual field with a length of 10. The table may provide suggested methods of measurement and show how they might list them in the standard's guidelines. Horizontal and vertical measurement methods should have an authority-defined domain. Elevation should have a defined datum. The panel recommends that latitude and longitude be made optional and is referred back to Subcommittee for further study. Field 8 is conditional to field 6 & 7 (that is, it only applies if 6 & 7 are optional). Panel feels the Subcommittee should address this.</p> | <p>2 – The Subcommittee agrees that the measurement method should be separated from accuracy, however, the measurement method should be standardized, not user defined.</p> |

FGDC Comment Sheet

| # | Organization | Paragraph/subpara/PG # | Figure/Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|------------------------|--|-----------------|---|---|---|---|
| 47 | WisDOT - 10 | 2.3.1.1 2.3.1.2 | Lines 463, 476, 477 Lines 484, 485, 486 | G | The combination of fields with embedded intelligence is unusually not recommended for unique keys in a data table per data modeling best practices. (Also see comment “WisDOT – 2 Proposed Change: Clarify if: - This is the unique ID for the “real-world” feature being represented, but the combination of the three fields is required to indicate the unique ID for the table record. OR CONTINUED -> | - This is the unique ID for the table record. Instead of creating a multi-part key where the FTRP-ID is permanent for the “real-world” feature being represented, it may be more robust and better modeling to use just the FTRP-ID as unique and permanent for a table record, and use the Equivalency table to maintain relationships between updated FTRP records. | 4 – The unique ID is a public key not database identification. | 1 – The combination of fields 1,2,and 3 uniquely define a record in the FTRP table. Field 2 is the unique ID for the real-world feature. |
| 48 | WisDOT - 11 | 2.3.1.1 | Line 469 | T | Horizontal-Accuracy-Measurement-Method: How should “Unknown” be coded? In normal database modeling practice, the code of “Other” (900) implies that it is known, but we do not care or it is not relevant, whereas “Unknown” indicates that it is not known. | Add an additional code for “Unkown” | 2 – The panel recommends that the domain be user defined. See panel’s response to comment #46. | 4 – See comment #46. |
| 49 | FGDC-10 | P30 | Line470 | T | Regarding the level of precision this is not consistent with the latitude and longitude values that are given to approximately 0.1m Why then give accuracy estimates to the centimeter? Just have a single error estimate consistent with spatial data accuracy standard | Limit precision to 0.1m | 1 – Panel recommends that fields 9, 10 and 12 be changed to .m accuracy. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|--------------------------|--------------------|---|---|---|---|
| 50 | FGDC-11 | P30 | L-471 | T | What is the Vertical referencing system? Sea level can vary by 2 meters What about elevations greater than 999.99m? | Use NAVD 88 as vertical reference system Use MMMM.m character format, this is also consistent with the significant digits given for lat & long. | 1 – Panel recommends changes, as described by reviewer, should be made to field 10 of table (format for field should be MMMM.m). | 1 – In addition, the Subcommittee will review the use of NAVD 88 as a measure of elevation (field 10). |
| 51 | FGDC-11.5 | | Line 472 | T | Mixing vertical accuracy and measurement method is problematic. For instance source method includes some type of implied accuracy, which may or may not be true. Separate accuracy and method codes should be developed. Perhaps use a letter code for method type that does not differentiate between different implied accuracies. Furthermore it sounds like the accuracy codes that you are using are estimates what about you have? What about data you have tested according the spatial data accuracy standard how do you report that? In terms of GPS measurements why are there six different methods? | This section needs to be split into Estimated Vertical Accuracy. And into a simple data collection method code. Decouple accuracy and method. Perhaps include a code to indicate if data has been tested to meet the stated accuracy. | 2 – See panel's response to comment #46. | 1 – See comment #46. |
| 52 | WisDOT - 12 | 2.3.1.1 | Line 472 | T | Same as comment "WisDOT – 11" above. | Add an additional code for "Unknown" | 2 – The panel recommends that the domain for this field be user defined. See panel's response to comment #46. | 4 – See comment #46. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|--------------------------|--------------------|--|--|--|--|
| 53 | WisDOT - 13 | 2.3.1.1 | Line 474 | T | <p>Status: Does this refer to the status of the database record or the “real-world” feature?</p> <p>What is the definition for the Status field values of “Proposed”, “Active” and “Retired”. This standard will be unworkable if those definitions vary because they are left to individual, cooperating agencies. Many agencies need to share the same data with multiple agencies and it may not be possible without common definitions.</p> <p>(Also see comment “WisDOT – 5”)</p> | <p>Provide clarification as to the definition of the “Status” field.</p> <p>Provide definitions for the valid Status field values.</p> | <p>2 – Status refers to the real world – the physical feature. The panel recommends clarifying the definition of Status.</p> | <p>1 –</p> |
| 54 | GDT-5 | 2.3.1.1 | | T | <p>The table suggests using NAD83 for the coordinate datum. This may not work outside of North America. The standard probably should specify WGS84 to handle roads in Hawaii, the Aleutians, and elsewhere.</p> | | <p>2 – See panel’s response to comment #26.</p> | <p>2 – See comment #26.</p> |
| 55 | FGDC-12 | P31 P55 | Line 492 Section 2.8 | T,G | <p>Who is the NSDI framework authority?</p> | <p>Is this DOT? If so, say so, if not, say how the authority is determined.</p> | <p>4 – Authority is described in the document. The panel suggests that the authority table and associated description be moved to the front of the section.</p> | <p>2 – Subcommittee will review placement of section 2.8.</p> |
| 56 | FGDC-13 | P32 | Line 501-503 | T | <p>The measurement method codes do imply an accuracy that may or may not be justified.</p> | <p>Separate the measurement method from accuracy.</p> | <p>1 – See panel’s response to comment #46.</p> | <p>2 – See comment #46.</p> |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|---------------------------------|--------------------------|--------------------|--|---|--|--|
| 57 | | P34 | Line 526-528 | T, E | <p>“an FTSeg...jurisdiction”</p> <p>What is the maximum length of a segment? It seems that a segment could be longer than the length of the jurisdiction since it will meander through the jurisdiction.</p> | <p>Suggest “an FTSeg...jurisdiction as specified in FIPS 5-2”</p> <p>Suggest deleting reference to maximum length and say: in general a segment will not be longer than the span of the jurisdiction</p> | <p>2 – Panel suggests replace text: “The maximum length of any FTSeg is the length of the feature within a State, territory or equivalent jurisdiction.” This better reflects the original intent as written, but the panel requests the subcommittee to examine whether or not (a) jurisdictional boundaries should break FTSegs, and (b) whether state codes should be included in feature identifiers.</p> | <p>2 – Subcommittee agrees with reviewers proposed re-write of line #527.</p> |
| 58 | NYSSDCW 3 | Pg. 35 | Line 546 | G | Only needed if a 2+ FTSeg have same FTRP | <p>Make Path not required</p> <p>None applicable</p> | <p>1 –</p> | <p>1 –</p> |
| 59 | VCGI | Part II – section 2.3.2.2 | Line 546 | T | <p>The TransID Standard requires “unambiguous” FTSeg <i>Path</i> and FTRP <i>Location</i> descriptions. However, it would be very time consuming to populate these fields with truly unambiguous descriptions.</p> | <p>Less emphasis should be put on this requirement. The standard should note that users can determine an FTRP’s location and FTSeg’s path from three primary sources:</p> <ol style="list-style-type: none"> 1. <i>Path and Location Descriptions</i> 2. <i>Connectivity Table</i> 3. <i>FTRP coordinates (Latitude and Longitude)</i> | <p>2 – The panel recommends that the statement be added to effect that the <i>totality</i> of the record must define the location unambiguously.</p> | <p>1 – Field 6 and 7 (lines #546 & #547) are optional. However, at least one of these fields must be completed when two FTSegs share the same end points.</p> |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|-------------------|-----------------------------------|---------------------------|--------------------|--|--|---|---|
| 60 | WisDOT - 14 | 2.3.2.2 | Line 547 | T | Intermediate-Point: Is it correct to state that this field is used programmatically to distinguish FTSEgs which share the same endpoints, and the Path-Description field is just a textual description to orient a maintainer/creator of FTSEgs? (Also see comment “WisDOT – 21”) | Clarify this intended use of the Path-Description and Intermediate-Point fields. | 2 – The panel makes the following recommendation for section 2.4 (lines #597 to #698) and all related tables and examples that deal with connectivity and the connectivity table. (A) – Connectivity is not an objective of the standard, and that all references to this be deleted. Consequently we do not need to distinguish implicit and explicit connectivity. (B) Change the name of the Connectivity table to Intermediate FTRP table. Record only the intermediate points in the Intermediate FTRP table which consist of (a) routing points as depicted in figure 2 (page 32), (b) wherever you want to place a non-terminal FTRP. Panel suggests that the Subcommittee re-write this section. | 2 – Subcommittee disagrees with the first part of the Panel’s “A” comment, however, the standard will be reviewed for appropriateness of the terms used to define connectivity. The Subcommittee agrees with changing the name of the “Connectivity” table to Intermediate point table . Subcommittee also agrees that only intermediate FTRPs need to be included in this table. However, the Subcommittee believes that discussion of network connectivity is a key goal of this standard and discussion of use of Intermediate Point table for connectivity purposes should be included. |
| 61 | WisDOT - 15 | 2.3.2.2 | Line 547 | T | Why can’t the recording of an unconnected FTRP in the connectivity table (see paragraph 2.4.4.2) replace the need for this field. | Consider removing this field and using an unconnected FTRP from the connectivity table to distinguish FTSEgs that share the same endpoints. This will reduce potential redundancies in the data. | 2 – See panel’s response to comment #60. | 4 – The Subcommittee will review line #547 and clarify in light of public comment if necessary. |
| 62 | Mn/DOT-Olmstead-5 | 2.3.2.2 2.3.2.3 | Line 547 Lines 560-566 | T | Intermediate-Point is unnecessary. Path-Description is sufficient for discriminating among FTSEg that originate and terminate at the same pair of FTRP. | Eliminate Intermediate-Point from the FTSEg Table and eliminate all references to it in the text. | 2 – See panel’s response to comment #59. | 4 – See comment #61. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|--------------------------|--------------------|---|--|--|--|
| 63 | WisDOT - 16 | 2.3.2.2 | Line 549 | T | This forces an FTSeg to end at a State border, hence a FTRP must exist at the border. This conflicts with the definition of the placement of FTRPs as unambiguously identified and recoverable in the field. (Also see comment “WisDOT – 19”) | Remove the State field from the FTSeg table. Jurisdiction location information can be shared as an attribute in the Attribute table if needed. | 2 – State field in FTSeg record is optional. | 4 – Subcommittee will remove line #549 State code from the table. |
| 64 | Fgdc-14 | P36 | L 551 | T, E | Again separate the method from the accuracy | See previous comments | 1 –The panel recommends that the word “Accuracy” be removed from identified table. See panel’s response to comment #46. | 1 – See comment #46. |
| 65 | WisDOT - 17 | 2.3.2.2 | Line 551 | T | Length-Accuracy-Measurement-Method: How should “Unknown” be coded? In normal database modeling practice, the code of “Other” (900) implies that it is known, but we do not care or it is not relevant, whereas “Unknown” indicates that it is not known. | Add an additional code for “Unknown” | 2 – See panel’s response to comment #48. | 2 – A value for Unknown will be added. All codes in measurement methods will be reviewed. |
| 66 | WisDOT - 18 | 2.3.2.2 | Line 552 | T | Status: Does this refer to the status of the database record or the “real-world” feature? What is the definition for the Status field values of “Proposed”, “Active” and “Retired”. This standard will be unworkable if those definitions vary because they are left to individual, cooperating agencies. Many agencies need to share the same data with multiple agencies and it may not be possible without common definitions. (Also see comment “WisDOT – 5”) | Provide clarification as to the definition of the “Status” field. Provide definitions for the valid Status field values. | 2 – See panel’s response to comment #53. | 1 – See comment #53. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|----------------------------------|--------------------|--|--|--|---|
| 67 | WisDOT – 19 | 2.3.2.3 | Lines 575, 576, 577, 578, 579 | T | <p>The inclusion of a State code seems arbitrary and doesn't appear to offer any significant benefit.</p> <p>By including a State code, a FTSEg is forced to end at a state border, hence a FTRP must be created at the border. Often this conflicts with the definition of the placement of FTRPs as "...unambiguously identified and recoverable in the field" (Line 211) since that location of the border may not be well-defined along the roadway.</p> <p>The justification that "A required State code allows users to more easily identify records of possible interest." (line 575) is nullified by the statement that bordering entities should "...derive a shared business rule for coding..." (line 579) when an FTSEg lies along a boundary line between two States. The development of multiple, shared business rule makes the standard onerous to use at a minimum and unworkable in the worst scenarios.</p> | Remove the State field from the FTSEg table. Jurisdiction location information can be shared as an attribute in the Attribute table if needed. | 2 – See panel's response to comment #63. Also, the panel recommends striking the word "required" in line #575. | 4 – See comment #63. |
| 68 | Fgdc-15 | P39 | Line 589 | T | "map projection" Has nothing to do with these feature segments | Delete "map projection" | 2 – Panel recommends moving figure #3 to just after line #518, and take sentence starting on line #587 to support figure #3 as well. Delete sentence in lines #588 to #590. Move figure #2 to line #567 and renumber figures to represent change in sequence. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|--------------------------|--------------------|--|---|---|--|
| 69 | NYSSDCW-4 | pg 39 | Line 593-594 | E | Line can be interpreted 2 ways | Change "FTRP are required..." to "Connections among 2 or more FTSeg require an FTRP." | 1 – Change sentence as appropriate. | 1 – |
| 70 | Bentley-4 | 2.4.1 | 599 | T | Not clear | Add "in the Connectivity Table" after "exist". | 2 – Changed sentence in line #599 to "At least <i>two</i> records must exist in the connectivity table for each FGSeg." | 4 – see comment #60. Lines #598 to #604 will be revised as per earlier comment #60. |
| 71 | Bentley-5 | 2.4.1 | 600 | T | Not clear | Add "in the Connectivity Table" after "exist". | 1 – | 4 – See comment #70. |
| 72 | Bentley-6 | 2.4.1 | 606 | T | If the darkened line is meant to separate the "primary key" from the rest of the table, it is in the wrong location. | Move the darkened line to below line 609 (FT-Seg-ID). | 1 - Panel suggests bolding of text. All primary keys should be differentiated by bold text. | 1 – Bold fields will be 2 and 4 in the Connectivity Table (Intermediate Point Table). Subcommittee will clarify difference between primary keys and those used for the data versioning. |
| 73 | Bentley-7 | 2.4.3 | | G | "Dead end" FTRP's appear to be missing from this section, i.e. the start or end of an FT-Seg with no other connecting FT-Segs. According to lines 599-601, they are in the Connectivity Table. | See Bentley-8. | 2 – See panel's response to comment #60. | 2 – Superseded by earlier comments, see comment #60. |
| 74 | NYSSDCW-5 | pg 40 | Line 610 | T | The offset will change, based on the scale of the data, and may cause maintenance problems. This is supposed to be scale independent. | - | 3 – The panel recognizes the reviewer's comment to be true but the situation is unavoidable. | 2 – Subcommittee will put additional wording in the Standard that the intent of the % offset is to establish a proper ordinal relationship between the reference points. |
| 75 | FGDC-16 | P41 | L 611 | T | Separate accuracy from method | See previous comments | 1 – See panel's response to comment #46. | 2 – See comment #46. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|-------------------|-----------------------------------|--------------------------|--------------------|---|---|---|---|
| 76 | FGDC-17 | P41 | L 618 | E, T | Precision is determine by the formats in this standard | Delete | 1 - See panel's response to comment #46. Text should be made consistent with table layout. | 2 – Field will be separated into two fields of measurement and accuracy. Measurement method is required for all records. Accuracy will be optional for all records. See comment #46. |
| 77 | Bentley-8 | 2.4.3.1 | 625-633 | T | The inclusion of these rows in the Connectivity Table is redundant with information already stored in the FT-Seg Table. An FTRP entered in the latter as a From-End-Point has an offset of 0% and is terminally connected or a dead end (see Bentley-7). To-End-Point is always 100%. If all four segments terminate at a grade separated crossing, different FTRPs should be used at each elevation as in 2.4.4.4. | Change section 2.4.3.1 to "Terminal connectivity can be obtained from the information in the FT-Seg Table and is therefore not entered in the Connectivity Table.". Strike the sentence spanning 599-601 | 2 – See panel's response to comment #60. | 2 – See comment #60 & #70. |
| 78 | Mn/DOT-Olmstead-6 | 2.4.3.1 | Lines 625-633 | T | Terminal connectivity is recorded in the FTSeg Table and needs not be recorded in the Connectivity Table. | Strike everything after "Figure 4" in line 629 to the end of the paragraph and insert "is not recorded in the Connectivity Table because these connections are captured by From-End-Point and To-End-Point in the FTSeg table." | 2 – See panel's response to comment #60. | 2 – See comment #60 & #70. |
| 79 | Bentley-9 | 2.4.3.2 | 634 | T | The term "explicit" is confusing, misleading and incorrect (which is further evidenced by misuse later in the document). A road ending at a location which exists along another road may <u>imply</u> that the roads are connected. Better yet, one may assume that they are as they may not | Change "explicit" to "terminal to non-terminal" | 2 – See panel's response to comment #60. | 2 – Subcommittee will adopt language recommended by reviewer. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|-------------------|-----------------------------------|--------------------------|--------------------|---|--|--|--|
| | | | | | be depending on location precision. Entering such a situation into the Connectivity table makes them explicitly connected. | | | |
| 80 | Bentley-10 | 2.4.3.3 | 658 | T | “Implicit” is likewise confusing, misleading, and incorrect. Presence of the FTRP in the Connectivity Table makes the connection explicit. Its absence implies a grade separated crossing with no connectivity (since there is no mechanism to be explicit about non-connectivity). | Change “implicit” to ‘non-terminal” | 2 – See panel’s response to comment #60. | 2 – Subcommittee will adopt language recommended by reviewer. |
| 81 | WisDOT – 20 | 2.4.3.3 | Line 661 | E | Appears that the incorrect “Figure 6” should be referenced, not “Figure 5”. | Change from “Figure 5” to “Figure 6” | 1 – See panel’s response to comment #60. Panel recommends change made per comment. The panel also recommends the following changes: First, an “e” should be put in FTSg_2 for Figure 6. Second, include a table for Figure 6 as done in Figure 5. | 1 – |
| 82 | Bentley-11 | 2.4.3.3 | 661 | T | Unclear | Change “the FTseg” to “any of the FTSegs” | 2 – See panel’s response to comment #60. | 2 – Subcommittee will adopt language recommended by reviewer. |
| 83 | IT2WG-8 | 2.4.3.3 | Line 661 | E | This paragraph refers to Figure 5, it should refer to Figure 6 | Change text Figure 5 to Figure 6 | 1 – See panel’s response to comment #60. | 1 – |
| 84 | Mn/DOT-Olmstead-7 | 2.4.4 | Lines 666-675 | T | Conditions lacking connectivity ought not be recorded in the Connectivity Table. | Insert “not” after “should” in line 671 and again in line 675. | 2 – See panel’s response to comment #60. | 4 – 2.4.4.2 addresses connecting freestanding reference points to an FTRSeg. See comment #60. |
| 85 | NYSSDCW-6 | Pg. 44-45 | Lines 667-670 | G | Although it may help with network connectivity, this seems sloppy | If not needed for connectivity, and not a new FTseg, an FTRP should not be placed. | 2 – See panel’s response to comment #60. | 4 – 2.4.4.2 addresses connecting freestanding reference points to an FTRSeg. See comment #60. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|--|--------------------|---|--|--|--|
| 86 | WisDOT – 21 | 2.4.4.1 | Lines 667, 668, 669, 670, 671, 672 | T | If the FTSeg’s Intermediate-Point field is kept (see comment “WisDOT – 14), then there is no purpose to record such an FTRP in the Connectivity table. To do so would actually break the rules of what the Connectivity table represents. By adding these to the connectivity table, there is more overhead to create a custom network as described in Link 695. | Reconsider the ramifications of including FTRPs in the connectivity table that are only an FTSeg’s Intermediate-Point. | 2 – See panel’s response to comment #60. | 4 – Table will be revised. Subcommittee recognizes that Intermediate point is redundant but serves as a data quality check to ensure that intermediate points are identified and properly recorded throughout the Standard. |
| 87 | Bentley-12 | 2.4.4.1 | 671-672 | T | Why are <i>unconnected</i> conditions in the <i>Connectivity</i> Table? | Change “should be” to “should not be” and strike the sentence spanning 599-601. | 2 – See panel’s response to comment #60. | 4 – 2.4.4.2 addresses connecting freestanding reference points to an FTRSeg. See comment #60. |
| 88 | NYSSDCW-7 | Pg. 45 | Fig. 8 | E | Line in graphic is misplaced | FTRP1 should point to FTRP | 1 – Change should be made to graph per comment. | 1 – |
| 89 | WisDOT - 22 | 2.4.4.2 | | T | Unclear for what reason that an unconnected FTRP would be created for the situations listed. A better approach may be to record and share the location of linear features in the Attribute table. This is especially true for features that are dynamic, such as a municipal boundary. This would also be more consistent with the recording and sharing of any attribute data. | Reconsider the use of FTRP for recording the location of linear features. | 2 – See panel’s response to comment #60. | 4 – 2.4.4.2 addresses connecting freestanding reference points to an FTRSeg. See comment #60. |
| 90 | Bentley-13 | 2.4.4.2 | 675 | T | Why are <i>unconnected</i> conditions in the <i>Connectivity</i> Table? | Change “should be” to “should not be” and strike the sentence spanning 599-601 | 2 – See panel’s response to comment #60. | 4 – 2.4.4.2 addresses connecting freestanding reference points to an FTRSeg. See comment #60. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-------------------------------|--------------------------|--------------------|--|---|---|---|
| 91 | Bentley-14 | 2.4.4.3 | 684 | T | Confusing. | Add new final sentence: "If FTRPs are used to mark the location of a bridge, this should be done both on the overpass and underpass routes; see 2.4.4.4." | 4 – See panel's response to comment #60. | 1 – The subcommittee acknowledges that this section is confusing and will be rewritten. |
| 92 | Fgdc-18 | P46 P80 | L 693 L1162 | T | X-Y should be Lat and Long | Use lat and long symbols phi and lambda | 2 – Remove reference to x – y on line #693. This should be done throughout the document. | 1 – |
| 93 | Bentley-15 | 2.5 | 713 | T | If the darkened line is meant to separate the "primary key" from the rest of the table, it is in the wrong location. | Move the darkened line to below line 718 (Attribute Name). | 4 – This is an artifact of the creation of the table. In addition, the panel suggests that the intended use of this table is to support the enhanced identification of FTSEgs and TRPs. It may also serve other purposes but is not required to do so. The panel suggests the following change made to lines #700 and #701: organizations will wish to share information about "real world" feature attributes ... The panel further suggest that verbiage be added to section 2.3.1.2 that explains the ID standard as a transactional database and that authority ID is part of this transactional database. | 1 – |
| 94 | Bentley-16 | 2.5 | 714 | T | Hardwiring an unnecessary value of 0 for reference point start and end offsets is symptomatic of non-normalized database design. | Separate tables should be used for segment and reference point attributes. | 4 – The ID Standard is not designed to be normalized. Table sufficient as presented. | 4 – The subcommittee will create separate tables for FTRPs and FTSeg per the reviewer's comment. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|--------------|-----------------------------------|--------------------------|--------------------|---|--|---|--|
| 95 | WisDOT - 23 | 2.5 | Line 714 | T | <p>Consider adding a separate field to indicate which type of feature is referenced in the “FW-Transportation-Segment-ID-or-Reference-Point-ID”.</p> <p>The only means to determine that now is to check for a value of zero in the “End-Offset” field, but this forces any point data on the end of a FTSEg to be associated with the FTRP. There may be scenarios where point event attribute data at the end of a FTSEg should be associated with the FTSEg with a both a “Start-Offset” and “End-Offset” of zero, instead of being associated with the FTRP. This would result in a cleaner design.</p> | Consider adding a new field to the Attribute table to indicate what type of feature (FTRP or FTSEg) is referenced in the “FW-Transportation-Segment-ID-or-Reference-Point-ID”. | 4 – | 1 – See comment #94. |
| 96 | Bentley-17 | 2.5 | 719 | T | So what is the data type for Attribute-value? | | 3 – Panel suggests character field, with a length of 255 characters. | 1 – The field will be character and “User defined” placed in table. |
| 97 | WisDOT - 24 | 2.6.3 | Lines 746, 747, 748 | T | <p>If authorities can use existing codes already in use to populate FTRP-ID and FTSEg-ID, it cannot be guaranteed that they will be unique to the “real-world” feature it represents. The same ID may be used to for different features.</p> <p>Albeit, the combination of the 3 fields to uniquely identify a table record is still valid, the concept of having “...multi-part key (to) provides relative permanence...” (Line 484 & 485) is no longer true.</p> <p>(Also see comment “WisDOT – 10)</p> | Don’t allow the use of existing codes to assign the FTRP-ID or FTSEg-ID. They should be unique to the “real-world” feature that they represent. | 4 – | 2 – Subcommittee will clarify Section 2.6.3 from “Identity Code” to “Authority Assigned Identity Code.” |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|----|-----------------------|-----------------------------------|--------------------------|--------------------|---|--|---|--|
| 98 | Mn/DOT- Olmstead-8 | 2.7.2 | Lines 769-788 | T | An FTSeg (or a portion thereof) may be equivalent to 0 or 1 or more FTSeg (or portion thereof). The Equivalency Table accommodates the equivalence of a whole FTSeg and part of another one, but it does not accommodate the equivalence between part of an FTSeg and part of another one. | Rename Start-Offset as Start-Offset-on-Reference-FTSeg in lines 780 and 785. Rename End-Offset as End-Offset-on-Reference-FTSeg in lines 781 and 785. Add Start-Offset-on-Equivalent-FTSeg and End-Offset-on-Equivalent-FTSeg fields to the Equivalency Table. | 1 – The panel makes the following recommendations: (a) There are several ways to “map” the large-scale (black and blue) components of the intersection to the red (or blue to black, etc) in figure 9. Standard document commentary must emphasize that there are several right answers. (b) The rules must allow the user to relate an FTSeg (or portion thereof) to an FTRP (e.g. the blue ramps must be allowed to collapse to the red square). (c) The sequence in which the offsets for FTSegs are entered must be logically paired, i.e. they are effectively mapped to each other in a consistent direction (which may be either direction). (d) The Equivalency Table should be an exception to 1.9.2.1.5 | 1 – |
| 99 | Bentley-18 | 2.7.2 | 776 (Table) | T | There is no bold line to separate the primary key. It probably needs to go after 780 (Start-Offset) in the case of an FTSeg entry by this leaves part of the primary key NULL if it is an FTRP entry – bad database design | Split the Table into two, one for FTSegs and one for FTRPs. Properly indicate the primary key in each. | 2 – See panel’s response to comment #72. | 2 – Separate Equivalency tables will be established for FTRPs and FTSegs. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|---|--|--|---|
| 100 | WisDOT - 26 | 2.7.2 | Lines 780, 781 | T | <p>In order to provide “many-to-many” equivalency relationships, need to add fields for “Equivalent-Start-Offset” and “Equivalent-End-Offset” with the same definitions as the existing “Start-Offset” and “End-Offset” fields. The only difference is that they contain the offsets for the FTSeg identified in the “Equivalent_FTSeg_ID”.</p> <p>An example would be if in a 6 mile stretch of road, one agency represents it as two segment of 3 miles each, and another agency represents it as three segments of 2 miles each. Without both sets of offset, the equivalency cannot be properly recorded.</p> <p>WisDOT has a table similar to this for the same purpose and it requires both sets of offsets to work properly.</p> | Add fields “Equivalent-Start-Offset” and “Equivalent-End-Offset” as described in the comments. | 2 – See panel’s response to comment #98. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|--|--|--|---|
| 101 | WisDOT - 27 | 2.7.2 | Line 782 | T | <p>Status: Does this refer to the status of the database record or the “real-world” feature?</p> <p>What is the definition for the Status field values of “Proposed”, “Active” and “Retired”. This standard will be unworkable if those definitions vary because they are left to individual, cooperating agencies. Many agencies need to share the same data with multiple agencies and it may not be possible without common definitions.</p> <p>(Also see comment “WisDOT – 5”)</p> | <p>Provide clarification as to the definition of the “Status” field.</p> <p>Provide definitions for the valid Status field values.</p> | 2 – See panel’s response to comment #53. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|---|--|--|---|
| 102 | WisDOT - 28 | 2.7.2 | | G | <p>Can the Equivalency table be used for reasons other than establishing a relationship between entities that make up a different representation? Two examples are provided below:</p> <p>1) Figure 9 (page 54): The authority that maintains a “dual line” representation may have the need to establish an equivalency relationship between FTSeg_1 and FTSeg_2. This will reduce the amount of attribute data entry and maintenance since many types of attributes (such as Functional Classification) will be the same sides of the road regardless of whether it is divided or not.</p> <p>2) “Figure 24 – Road Reconstruction” in Appendix D: The 1st portion of FTSeg_1 has not been affected by the reconstruction, but yet the whole of FTSeg_1 must be retired. The Equivalency table can be used to created a relationship between the 1st part of FTSeg_1 (not affected by the reconstruction), and the last part of FTSeg_2 (that replaced the unaffected part of FTSeg_1). This provides a means for attribute data tied to the 1st part of FTSeg_1 to programmatically be propagated to the FTSeg_2.</p> <p>WisDOT has a table similar to this for the purpose described in the 2 examples.</p> | Clarify the use of the Equivalency table. Consider its use to establish relationships of “still valid” portions of retired FTSegs to corresponding portions of active FTSegs, and relationships between parallel, but opposing FTSegs in a “dual line” representation. | 2 – Panel suggest use of equivalency tables in standard be clarified. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-------------------------------|--------------------------|--------------------|--|--|---|---|
| 103 | Butler | Section 2.7, pp. 50-55 | Lines 789-863 | G | The proposal assumes that more accurate geometry will replace less accurate geometry as measurements and data sources improve. However, there is no direct recognition of the need for a logical (low-resolution) representation equivalency for routing, attribution, and similar functions. The use of an equivalency table record does not accomplish the same thing (a logical FTRP may relate to a group of FTSEgs, such as at an interchange) and requires a complicated data query process to identify. | Add a new field to the FTRP and FTSEg data records to accommodate a one-character logical/physical indicator. This field would store either an "L" (logical) or "P" (physical) value. There would only be one logical value, which could serve to support multiple physical representations. The logical record could serve as the datum object. Every FTRP and FTSEg would have to have a logical record; the physical (geometry) record would be optional as the intent is to support all data exchange, not just SDTS-type cartography transfers. | 4 – The standard already supports both logical and physical representations. The panel suggests that additional text be added to show how this occurs (logical vs. physical and conditions of representation). | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|------------------------|-------------------------------|--------------------------|--------------------|---|--|--|---|
| 104 | TransDecisions Inc. | 2.7.2 | | T | In general, a part of a FTSeg can be related to all or part of an equivalent FTseg. The current definition of the EQUIV table assumes that part of a FTSeg must be equivalenced to all of an associated FTSeg in the other network. This limits the use of the Equiv table to provide a generalized mapping between two networks as it makes strong assumptions about the topological structure of the two networks being equivalenced. It is easy to extend the existing model without making assumptions about how the networks are organized and without affecting models implemented on the existing draft framework. | Change the definition of the EQUIV table as follows: REF_FT_ID REF_START_OFFSE T REF_END_OFFSET EQUIV_FT_ID EQUIV_START_OFF SET EQUIV_END_OFFSE T DATE This provides a more robust relationship model that can handle both FTRPs and FTSegs and all possible relationships between the two. | 2 – See panel’s response to comment # 98. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|-----------------------|---|--------------------------------------|--------------------|--|--|--|---|
| 105 | Mn/DOT- Olmstead-9 | 2.7.3 App. D, Section s 5 and 6 | Lines 795-824 Lines 1693- 1742 | G | <p>The equivalency notion is not yet adequately developed. It is designed to address situations where there are variations in the level of abstraction used in the formation of FTSeg and FTRP. Figure 9 shows a “small scale” abstraction adjacent to a “large scale” abstraction and it shows large scale and small scale abstractions that represent the same transportation facilities. Equivalence among FTRP is sufficient for dealing with the adjacency situation. (Indeed, the connectivity notion could be adjusted to accommodate this situation. In Figure 9, FTSeg_1 and FTSeg_4 could be said to be “implicitly connected” at offset 0% along each, eliminating the need to record equivalence between FTRP_A and FTRP_C.)</p> <p>Equivalence between different levels of abstraction of the same transportation facilities is more troubling. The draft standard adequately addresses equivalence among FTRP and FTSeg in Figure 9, but not in Figures 25, 26, and 27. For example:</p> <ul style="list-style-type: none"> * In Figure 25, what part of Segment 2 is equivalent to what part of S19? * The FTRP at the origin of S6 is equivalent to the FTRP at the origin of S18. Should the FTRP at the origin of S12 be recorded as equivalent to the one at the origin of S6? The one at the origin of S18? Or both? * If S12 originated at the | Address the adjacency-of-different-levels-of-abstraction issue separately from the overlapping-coverages-of-different-levels-of-abstraction issue. Ensure the discussion of the latter is complete. Include in section 2.7 an example like that shown in Figure 25 (perhaps even adding collector/distributor roadways) and fully describe the necessary entries in the Equivalency Table. | 2 – See panel’s response to comment #98. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|--|---|---|--|
| 106 | Bentley-19 | 2.8.3 | 869 | T | If the darkened line is meant to separate the “primary key” from the rest of the table, it is in the wrong location. | Move the darkened line to below line 864 (Date). | 2 – Panel suggest reviewing use of the term “Primary Key” vs. Unique Identifier. | 1 – |
| 107 | Bentley-20 | Appendix A | 893 | E | Typo | Change “a” to “an” | 1 – | 1 – |
| 108 | Bentley-21 | Appendix A | 911 and 917 | T | LRM are methods of measuring, so “link-node” (the thing you measure along) is not an LRM | Change “link-node” to “link-node-offset” | 1 – | 1 – |
| 109 | Bentley-22 | Appendix A | 927 | E | Typo | Strike “A”, capitalize “commonly”, and pluralize “method” | 1 – | 1 – |
| 110 | FGDC-28 | P67 | L 976 | G, T, E | National Map accuracy standards are obsolete. Did You consult with Geospatial Positioning Accuracy Standard, Part 1, Reporting Methodology, FGDC-STD-007.1-1998? How about Geospatial Positioning Accuracy Standard, Part 3, National Standard for Spatial Data Accuracy, FGDC-STD-007.3-1998? | Delete reference. Incorporate Current standards | 2 – Panel suggests the following: (a) add FGDC-STD-007.1-1998 to informative bibliography; (b) add word “superceded by FGDC-STD-007.1-1998” to NMAS bibliography item. | 1 – |
| 111 | WisDOT - 29 | Appendix C / Paragraph 1.1 | Lines 1005, 1006 | T | Refer to comment “WisDOT – 19” | | 2 – See panel’s response to comment #63. | 1 – State code will be dropped. Delete lines #1005 and #1006. Search for all similar references to State boundary and remove. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-------------------------------|--------------------------|--------------------|---|-----------------|--|---|
| 112 | WisDOT – 30 | Appendix C / Paragraph 1.1 | | G | <p>Unclear to the purpose of cartographic representation rules. These rules make sense if hardcopy maps are being shared, but if only digital data is shared, what is the purpose?</p> <p>It also seems that the cartographic display rules may not often clearly communicate what is stored in the data. This is especially true in trying to label/annotation areas with a dense roadway network or complex interchanges.</p> <p>(Also see comment “WisDOT – 47”)</p> | | <p>2 – Panel suggests reviewing document and deleting references to cartographic standards, which are outside the scope of the identification standard. The panel further suggests putting in a section about symbols at the beginning of the document, near “Terms.”</p> | <p>1 –</p> |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|--|---|--|---|
| 113 | IT2WG-9 | Implementation 1/subpara 4 | Lines 1026- 1035 | G | <p>The “Example” suggests that an E-911 agency should maintain one database structure for the NSDI and “create a supplemental road database” to serve their everyday business needs. What is this “supplemental” database supposed to supplement? Where is the advantage? Where is the business need? Where is the motivation for anyone to maintain two separate data structures or databases, one for their own needs and one for the FGDC/ GTS community? Why should any “Authority” maintain a separate database for the FGDC/GTS that serves little or no utility in meeting the Authority’s everyday business needs? How does an Authority build a “business case” to justify the extra added expense (time and money) of maintaining data for the FGDC/GTS that does nothing to help the Authority meet their own everyday business needs?</p> <p>Proposed Change: After reading through this proposed Identification Standard several times, it appears that “data sharing” between local Authorities is not the point of this “ID standard”. The ‘real’ intent appears to be to have everyone in the US reformat their data into this “link-node” schema that will serve the needs of the FGDC/GTS community, primarily for</p> | <p>I fail to see how any County level Authority [at least in Idaho] could build a defensible “business case” for incurring the expense of implementing any data structure that does not directly address the Authority’s every day business needs for transportation infrastructure management. Curiously, none of the members of the Ground Transportation Subcommittee proposing this standard--see http://www.bts.gov/gis/fgdc/pubs/members.html--appear to have any direct responsibility for transportation infrastructure management. Neither does there appear to be any Local (non-federal or non-national) level representatives on the GTS. Perhaps the GTS should include representatives from urban and rural local levels of government (State, County, City, Highway District). This might help ensure a more realistic assessment of the needs of local data Authorities and a more useful standard.</p> | <p>5 – The panel believes this is a policy issue for FGDC. E-911 and other agencies, which rely critically on data sharing, have more to gain than lose by the investments of time and funds inherent in implementing the standard. See panel’s response to comment #150.</p> | <p>1 –</p> |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|---|---|---|---|
| 114 | Bentley-23 | Appendix C - 1.1.2 | 1042 | G | It is not apparent why display is part of this standard. Distinguishing 3 FTRP symbols is difficult to understand (as evidenced by the misuse later in this document), will be difficult to implement, and is of little apparent benefit. | Strike entire section or at least have a single symbol for all FTRPs. | 2 – See panel’s response to comment #112. | 1 – |
| 115 | NYSSDCW-8 | Pg. 74 | Fig. 11-12 | E | Text overlaps graphics | Fix overlap of graphics | 1 – | 1 – |
| 116 | IT2WG-10 | 1.1.2.2. 2 | Lines 1059- 1068 | T | Any FTRP symbol that “might not indicate any FTSeg connectivity”, or “might indicate implicit connectivity” is pretty useless. | If the point of using different circles is to indicate different kinds of connectivity, then where no connectivity exists, don’t put any circles. If the lack of connectivity must be explicitly symbolized, then use a symbol that is significantly different from a circle (e.g., a filled triangle or square). | 4 – Not accepted by panel. See panel’s response to comment #112. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|--|---|--|--|
| 117 | IT2WG-11 | 1.1.3 | Lines 1076-1084 | G | It is not clear who the “Users” are that this paragraph is referring to. It can’t be Road Data Authorities that submit data to the NSDI—most likely they already have their data encoded properly [for GIS and network analysis] to meet their business needs. Also, shouldn’t all “[C]artographic representations” whether or not they utilize FTRP and FTSeg “be carefully symbolized....so that users do not impute....position or precision that is not warranted...”. The last part of that sentence, “or confuse them with links and nodes” is even more confusing since FTRP and FTSeg are links and nodes. | Define “Users” in Appendix A: Terminology. | 4 – The panel believes that “Users” is a generic term, and is not intended to be limited to a specific audience. | 1 – |
| 118 | FGDC-19 | P75 | L 1079 | E | “imput” | input | 4 – | 1 – |
| 119 | IT2WG-12 | 1.2.1 | Lines 1086-1093 | G | It is not clear what the benefits are of placing FTRP at every jurisdictional boundary in a state. The number of different, individual, independent road jurisdictions varies greatly from state to state. Isn’t it Ohio DOT that has jurisdiction over all public roads in the state; whereas in Idaho there are 290 independent agencies with jurisdiction over public roadways. | Require that road Authorities only be able to submit data about roadways under their jurisdiction. The only exception would be the state DOT; the State DOT should be able to submit data about roadways not under the jurisdiction of the DOT if the Agency/Authority in question puts in writing that it has no intention of participating in the NSDI. | 4 - Many authorities may have data associated with a single transportation feature. This is dealt with in Appendix C (these are informative examples, not normative rules). | 1 – Bruce will provide Words. Appendix C represents best practices. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|--|--|--|---|
| 120 | Bentley-24 | Appendix C - 1.2.1 | 1087 and 1099 | T | Placing an FTRP at a jurisdictional boundary is not consistent with the notion of an FTRP location being “field recoverable” | | 3 – See panel’s response to comment #119 – Appendix C. | 1 – Section 1.2.1 will be rewritten for simplification. Fred will supply a draft to the Subcommittee. |
| 121 | Bentley-25 | Appendix C - 1.2.1 | 1090-1093 | T | In the example given, would it not make more sense to have each State have their own FTRP and then create an equivalence relationship between the two FTRPs? Then each State would have its own complete set of FTRP’s. | | 3 – Accommodated in standard. | 1 – Section 2.8.1.4 discusses coordination with adjacent and higher level authorities and the efforts occurring within its jurisdiction. |
| 122 | WisDOT – 31 | Appendix C / Paragraph 1.2.1.1 | | T | Refer to comment “WisDOT – 19” | | 3 – See panel’s response to comment #63. | 1 – Refer to comment #57. |
| 123 | WisDOT – 32 | Appendix C / Paragraph 1.2.1.2 | | T | Placing an FTRP at a county boundary often conflicts with the definition of the placement of FTRPs as “...unambiguously identified and recoverable in the field” (Line 211) since that location of the border may not be well-defined along the roadway. (Also see comment “WisDOT – 19”) | Refine this paragraph to state that when considering the placement of an FTRP at a county boundary, the authorities should bear in mind that its location should be recoverable in the field. See Proposed Change in comment “WisDOT – 6”. | 2 – See panel’s response to comment #119. | 2 – Subcommittee will change “unambiguously identified and recoverable” to “unambiguously identifiable and locatable in the field.” |
| 124 | IT2WG-13 | 1.2.2 | Lines 1103-1116 | G | The first sentence (“An FTRP should be placed....similar functional class or importance....at grade.”) doesn’t make any sense in the context of the rest of the paragraph. If functional class is a criteria for placing FTRP then it should be a required attribute for the FTSegs connected by the FTRP. | Require functional class as a FTSeg attribute; or drop/delete the words “functional class or” (line 1105). | 2 – Example will be reworded (see NTE #1). | 1 – Subcommittee will remove reference to Functional Class in identified text. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|---|--|---|--|
| 125 | NYSSDCW-9 | Pg. 78 | Section 1.2.3. | T | This is very (i.e., a "short FTSeg") is very subjective, and could be quite important to many users. It should be left to an authority's own discretion. | - | 3 – See panel's comment NTE #1 | 1 – Subcommittee will emphasize that identified text are illustrative examples and good practices. Recommended practice and the consequences for decisions. |
| 126 | IT2WG-14 | 1.2.3 | Lines 1133-1139 | G | Offset Intersections explicitly illustrate one of the primary limitations of link-node schemas: they don't represent the real world. In this case, the real world—or data representing it—must be “modified” or “changed” to fit the requirements of the application. The idea of changing data about the real world to fit some preconceived application requirement is anathema to the scientific method. Also, the first sentence refers to “distinct intersections offset by a short distance.” What is a “short distance”? 5 Meters? 10meters? 0.01 miles? | Distinct intersections should be represented as distinct intersections. In an efficiently structured referencing system, all segments and all distinct intersections can be represented realistically in an application independent manner so as to facilitate applications that require topology, as well as applications that don't. | 4 – Dependent on local business rules. See panel's comment # NTE #1. | 1 – |
| 127 | WisDOT – 33 | Appendix C / Paragraph 1.2.4 | | T | How should one cartographically display multiple FTRPs at the same X,Y location but with different Z values? Especially if one has terminal connectivity and the other has explicit or implicit connectivity. | Clarify the cartographic display rules for this situation. | 4 – See panel's response to comment #112. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|---|--|---|---|
| 128 | IT2WG-15 | 1.2.4 | Lines 1140-1149 | G | <p>Even in a link-node schema driven by topology, it is not clear what the benefits are of placing FTRP at grade separations that do not represent connectivity. If the identification of all NBI bridges and tunnels is necessary, then it should be stated explicitly as a requirement.</p> <p>Proposed Change: Either: (1) require the identification of all NBI bridges and tunnels; or (2) only require FTRP at grade separations that actually possess connectivity, or (3) reword paragraph as follows: "FTRP should not be placed at grade-separated crossings unless needed to meet specific needs such as where two segments terminate on the upper or lower grade. If segments terminate on both the lower and upper grades, two FTRP should be placed, one for the upper crossing termini, and one for the lower crossing termini. CONTINUED - ></p> | <p>Finally, an FTRP may be placed at such an intersection and not serve as a terminal point of any segment; i.e., it could serve only as an "intermediate-point" of one of the segments, however this should be discouraged as it may cause confusion. In summary, placement of an FTRP at such a location requires users to provide additional information in any network applications, so that users do not make unsupported assumptions about implicit connectivity."</p> | <p>4 – Connectivity no longer an issue. See panel's response to comment #60.</p> | <p>4 – See comment #60.</p> |
| 129 | WisDOT – 34 | Appendix C / Paragraph 1.2.5 | Lines 1162, 1163 | T | Refer to comment "WisDOT – 33". | | <p>3 – See panel's response to comment #112.</p> | <p>1 –</p> |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|--|---|--|--|
| 130 | WisDOT – 35 | Appendix C / Paragraph 1.2.5.1 | Line 1165 | T | Line 1165 state that “An FTRP should not terminate a segment of a road at every gore point...”. Can this be clarified to include situations where an FTRP may be needed at a gore? One example is where two “mainline” roads merge or diverge. | Clarify that an FTRP may be needed where the path of two “mainline” roads merge or diverge. See Proposed Change in comment “WisDOT – 6”. | 4 – See panel’s comment NTE #1. | 1 – |
| 131 | WisDOT – 36 | Appendix C / Paragraph 1.3 | Line 1172, 1173 | T | The sentence “...FTRP can and should be selected in such a way that there is only one path between them along a transportation network” gives the impression that one should establish FTSEgs & FTRPs the same as a network. In most instances, following the instructions requires the FTSEg to terminate at each intersection otherwise the path is not unique. This seems to contradict earlier statements that FTRPs and FTSEgs does not of themselves form network topology. | See Proposed Change in comment “WisDOT – 6”. | 4 – See panel’s comment NTE #1. | 1 – |
| 132 | IT2WG-16 | 1.3.1 | Lines 1183-1189 | G | The title of this paragraph is ambiguous, it could refer to the measured length of the segment, but it could also refer to the size of the <i>chunk</i> of road that makes up the FTSEg. | Rename ¶1.3.1 as follows: “Establishing FTSEg Length.” | 2 – See panel’s comment NTE #1. | 1 – Subcommittee will remove section 1.3.1 and subsections from document and renumber remaining sections. |
| 133 | WisDOT – 37 | Appendix C / Paragraph 1.3.1.2 | | T | Given the dynamics of jurisdictional boundaries (ie.-annexations) , this may not be practical for long term maintenance since FTSEgs and FTRPs edits will be required for any jurisdictional boundary change. | See Proposed Change in comment “WisDOT – 6”. | 2 – See panel’s comment NTE #1. | 1 – See comment #132. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--|--------------------|--|---|--|--|
| 134 | WisDOT – 38 | Appendix C / Paragraph 1.3.2 | Lines 1203, 1204, 1205, 1206 | T | <p>These sentences seem to contradict Lines 222, 223 & 224 – “...transportation segments that are ... independent of any cartographic representation, scale, level of detail, or network application”.</p> <p>How can the proposed standard state what is in lines 222, 223, & 224, then recommend that an authority should take this into consideration when implementing the standard?</p> | See Proposed Change in comment “WisDOT – 6”. | 2 – Panel suggest revising or deleting paragraph during re-write. See panel’s comment NTE #1. | 1 – Subcommittee will change “should” to “could/may” (or use other terminology to reflect this intent) where appropriate. |
| 135 | Bentley-26 | Appendix C - 1.3.3.1 | Figure 16 | T | FTSeg S10, S12, S14, S16 are incorrectly depicted as curved lines | Change them to straight lines in accordance with Appendix C 1.1.2.1 recommendations | 4 – See panel’s response to comment #112. | 4 – Subcommittee will revise figure in document to be consistent. |
| 136 | WisDOT – 39 | Appendix C / Paragraph 1.3.3.1 | Lines 1269, 1270, 1271, 1272, 1273 | T | <p>The guidelines to determine where an FTSeg are split within an interchange seem to be arbitrary and somewhat contradictory to Lines 1172 & 1173.</p> <p>What is the purpose for limiting where to split an FTSeg and what reason was the split location listed (“first crosses a direction roadway”) selected?</p> | See Proposed Change in comment “WisDOT – 6”. | 2 – See panel’s comment #1. | 1 – See comment #134. |
| 137 | WisDOT – 40 | Appendix C / Paragraph 1.3.3.2 | Lines 1286, 1287, 1288, 1289 | T | It seems that it is much more work (and overhead) to create and maintain the terminal FTRP should in Figure 17 – “Diamond” Interchange. Why not instead create an FTRP at the end of FTSeg_1 and/or at the end of FTSeg_4; or create an FTRP at the end of FTSeg_9 and/or at the end of FTSeg_7? | See Proposed Change in comment “WisDOT – 6”. | 2 – See panel’s comment #1. | 1 – See comment #134. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-------------------------------------|--------------------------|--------------------|--|--|--|--|
| 138 | VCGI | Part III – section 1.3.3.4 | | T | <p>Looping FTSegs can be problematic. The proposed TransID Standard suggests 10 storing loop direction information (clockwise vs counter-clockwise) in the <i>Path Description</i> field of the FTSeg table. However, parsing of free-form text is unreliable.</p> | <p>Add a “loop direction” field LOOPDIR to the Ftseg table.</p> <p>The domain could be as follows: 1. “C” = Clockwise 2. “CC” = Counter Clockwise 3. “NA” = Not applicable. An alternative approach is to require that all looping FTSegs go in only one direction (clockwise). This would eliminate the need to track this information.</p> | <p>2 – Directionality can be accommodated in Attribute Table. Because this is an essential characteristic of a line on which depends all offsets of the object, there should be a standard way to do it: e.g. (a) Attribute Name = DIRECTION-ALITY, Attribute Values = CLOCKWISE, COUNTER-CLOCKWISE; (b) Path Description = CLOCKWISE or COUNTER-CLOCKWISE.</p> | <p>1 – A field will be added to FTSeg table. The subcommittee will use terminology provided by commenter.</p> |
| 139 | IT2WG-17 | 1.4 | Lines 1331-1336 | G T | <p>Allowing multiple records for the same entities is asking for trouble.</p> <p>Also, “Updating” is defined as creating a duplicate record; everywhere else in the modern world; “updating” refers to changing a [database record] non-key attribute.</p> <p>Proposed Change: Limit road authorities to submitting only data about roads under their own jurisdiction. Where the endpoints (FTRP) of roads overlay or match-up will indicate where the Jurisdiction breaks are and the connectivity points between jurisdictions. CONTINUED -></p> | <p>Find a new term for “creating” a duplicate record. Don’t use a term—like “updating”—whose current meaning is already standardized.</p> | <p>4 – This is a transactional database. Not creating duplicates.</p> | <p>1 –</p> |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------------------|---|--|--|--|
| 140 | IT2WG-18 | 1.4 | Lines 1337-1341 | G T | What does “improvements in description” mean? Does this refer to the “To” and “From” English language narrative descriptions, or attribute descriptions? If there has been “no change in the ‘real world’ features represented by FTRP and FTSeg”, then there’s no real reason to “update” anything, is there? Segment length is optional. | Only update descriptions if changes in the real world features render the current description inaccurate or obsolete. Require length. | 4 – Pane unable to adopt proposed change because reviewer does not clarify rules: “inaccurate” and “obsolete” are undefined. 4 – Panel rejects use of mandatory length in standard. | 1 – |
| 141 | WisDOT – 41 | Appendix C / Paragraph 1.4.1 | Lines 1343, 1344, 1345 | T | The comment “...requires retirement of old FTRP...” for a road reconstruction should be clarified. If an FTSeg is re-defined due to reconstruction, then the FTRP only needs to be retired if the location that it represents has been altered. For example, in “Figure 24 – Road Reconstruction” of Appendix D, neither FTRP_P1 nor FTRP_P2 need to be retired since the reconstruction didn’t alter them. | Clarify this section to indicate what needs to be retired and when. See Proposed Change in comment “WisDOT – 6”. | 2 – See panel’s comment NTE #1. | 1 – Subcommittee will move section 1.4 and 1.5 to its own annex. An introduction will be added to new the annex that states generally: FTRP and FTSeg tables represent transactional databases. These are considered rules and are normative. |
| 142 | WisDOT – 42 | Appendix C / Paragraph 1.4.2 | | T | Unclear if the FTSeg-ID and FTRP-ID should be retained or not due to “re-measuring”. Earlier statements in the standard (Lines 484, 485, 486) seem to indicate that in a situation like this the FTSeg-ID should remain this same. | Clarify whether or not the FTSeg-ID and FTRP-ID should be retained during remeasurement. See Proposed Change in comment “WisDOT – 6”. | 2 – See panel’s comment NTE #1. | 1 – Subcommittee will clarify section 1.4.2 to address the commenter’s issue. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|---|---|--|---|
| 143 | WisDOT – 43 | Appendix C / Paragraph 1.5.2.2 | Lines 1373, 1374 | T | What is the reasoning for “...retain(ing) the unique ID which has the earliest date of assignment” when dealing with duplicated FTRP-IDs? Does it really matter which one is used? The current guideline gives the impression that the decision to use the “earliest date” FTRP was arbitrary, especially since the latest FTRP may be more up-to-date. | See Proposed Change in comment “WisDOT – 6”. | 4 – This is a transactional database. | 1 – |
| 144 | IT2WG-19 | 1.5.2.2 | Lines 1373-1387 | G | Why should authorities “retain the unique ID which has the earliest date of assignment”? Why not keep the ID with the more accurate or useful representation? While we recognize this is an arbitrary rule, it is not the best solution. | The operations of Create, Read, Update, Delete, Expire (CRUDE) are already well known and accepted or STANDARDIZED. Redefining them to suit this proposed Standard will likely cause more problems than it solves. The GTS should utilize existing data processing standards and terminology and not seek to “re-invent the wheel”. | 4 – This is a transactional database. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|--------------------------------------|---|--------------------|---|---|--|--|
| 145 | WisDOT – 44 | Appendix C / Paragraph 1.5.2.2 | Lines 1382, 1383, 1384, 1385, 1386, 1387 | G | <p>The level of effort to “...review coordinate and description data...”, “...analyze possible duplicates...”, and “...update these with any useful information from records which are to be retired...” appears to be daunting.</p> <p>WisDOT has a concern that the resources involved to accomplish such as task will make it difficult to convince authorities to adopt this standard. (Also see comment “WisDOT – 48”)</p> | <p>See Proposed Change in comment “WisDOT – 1”.</p> <p>See Proposed Change in comment “WisDOT – 6”.</p> | 5 – | 1 – The Standard does not require any specific level of coordination. The Standard simply helps facilitate coordination. Details, such as coordination, are appropriate for an implementation document. |
| 146 | FGDC-20 | P95 P96 | L 1394-1397 L 1410-1413 L 1424 | T, G | Who will do this? | This is a DOT responsibility. Clearly state this. | 4 – See panel’s response to comment #55. | 4 – The Subcommittee accepts reviewer’s comment and proposes the following change: Change line #1394 to #1395 to “will be performed by the U.S. Department of Transportation.” |
| 147 | IT2WG-20 | 1.6.2.1 | Lines 1414- 1421 | G | The first two sentences are very confusing. | Clarify the intent of this sub-paragraph. | 2 – See panel’s comment NTE #1. | 2 – Section 1.6 will be simplified to a single paragraph addressing all points raised in the remaining part of section. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|--|---|--|---|
| 148 | IT2WG-21 | 1.7 | Lines 1428- 1433 | G | <p>“The implementation of this standard requires development of consensus among a limited number of authorities...”. In Idaho there are 290 independent road jurisdictions, each of which qualifies as a road data authority according to this proposed standard. 290 are NOT a “limited number of authorities”. Developing consensus among 290 different authorities to implement an ID standard that may or may not meet any of their day-to-day business needs may prove to be extremely difficult.</p> <p>Proposed Change: Limit road data authorities to only submitting data about roads under their jurisdiction (with the possible exception of State DOT’s; State DOT’s should be allowed—in the interest of completeness—to submit data under local jurisdictions if said jurisdictions do not wish to participate). CONTINUED -></p> | This will prevent the duplication of FTSeg among authorities and provide common FTRP that link together data from different jurisdictions. | 4 – Standard is designed precisely to address this. | 1 – |
| 149 | IT2WG-22 | 1.7.1 | Lines 1434- 1438 | G | It is not clear what “task” the last sentence (Line 1438) is referring to. | Rewrite sentence: Typically, the choice of geographic extent is closely linked with the participation of “Cooperating Authorities” (Section 1.7.2).” | 2 – The panel suggests the identified sentence be deleted. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|--|--|---|---|
| 150 | IT2WG-23 | 1.7.2 | Lines 1439- 1447 | G | The last sentence is parochial and patronizing in its tone—“Each.... organization should recognize” that it’s in their best interest to participate in the NSDI; and its veracity is questionable. It is extremely easy to see how this data structure—a link-node schema sans length and real world temporality—will support current, national and interstate routing applications. However, other than routing applications, it has not been demonstrated that this proposed data structure will support any “key business functions” in terms of day-to-day transportation infrastructure management for local jurisdictions. | Delete the last sentence, lines 1445-1447. | 2 – The panel suggests changing the identified sentence as follows: “The benefits of implementation consist of future enhancements in the ability to share data which support ...” | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|---|--|--|--|
| 151 | IT2WG-24 | 1.7.6 | Lines 1477- 1487 | G | This prototype implementation requires carrying two different referencing schemas in the same system at the same time, "...authorities should then attempt to embed the FTRP and FTSEg identifying information within their own data structures". Developing an application that "translates" data from one structure to another for reporting purposes is a relatively straightforward task. "Embedding" a foreign data structure within an existing data structure is a considerably more complicated task. The former requires developing a translation program the reformats the data; the latter requires (1) modifying the existing data structure, (2) possible re-segmenting of basic referencing units, and (3) maintaining what is essentially functionally redundant data. | Explore developing a translation program rather than modifying existing data structures. | 5 – The panel suggests deferring this issue to FGDC, private sector, etc. | 1 – Separate document on implementation will be developed. This may be done in conjunction with web resources. Wording to the effect "these issues are addressed in a separate document" will be added. |
| 152 | IT2WG-25 | 1.8 | Lines 1488- 1565 | G | This section outlines the incredible amount of work necessary to implement this standard within a state—even assuming altruistic cooperation between all authorities. Line 1523 starts by saying that this effort "should not be undertaken without an understanding of the specific business benefits which will accrue." | When the FGDC/GTS comes up with a simple, parsimonious standard that can be implemented with reasonable effort and has obvious day-to-day benefits (utility) for users, it is more likely to be implemented. | 3 – | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|--|--|--|--|
| 153 | Bentley-27 | Appendix C – 1.8.2.3.1 | Figure 20 | T | FTSeg S10, S12, S14, S16 are incorrectly depicted as curved lines | Change them to straight lines in accordance with Appendix C 1.1.2.1 recommendations | 4 – Cartographic standard not applicable. | 4 – See comment #135. |
| 154 | Bentley-28 | Appendix C – 1.9 | 1566 | T | There are no conformance clauses to insure temporal integrity. For example, 1.9.3 requires referential (an FTSeg's From-end-point must exist in the FTRP table) but not temporal (and the FTRP must be "active" for "active FTSegs) integrity. | <u>All</u> temporal constraints need to be enumerated. | 5 – The panel recognizes that temporal constraint is an aspect of data quality, however, temporal enforcement is beyond the scope of standard. Also, see panel comment NTE #2. | 1 – |
| 155 | FGDC-20.5 | P107 | L 1583 | T | Where is the Fw Authority index? | Provide index or explain better where it will come from | 4 – See panel's response to comment #55. | 4 – The Authority Index will be maintained by the US DOT. |
| 156 | NYSSDCW-10 | Pg. 107 | Line 1588 | T | Shouldn't have to change to this date, if existing records have been kept and predate 1999. | Remove section 1.9.2.1.4. | 2 – Panel suggest changing identified sentence to read: The content of all <i>mandated</i> date fields ..." | 4 – Subcommittee accepts reviewer's comments. |
| 157 | FGDC-21 | P107 | L 1590 | G, T | Should it be "greater than or equal to?" | If so add "or equal to" | 1 – The panel suggests clarifying the following issue: FTSegs may carry attributes applicable to point-extents, in which case end offset is equal to start offset. | 1 – Subcommittee will add the words "or equal to" as recommended by reviewer. |
| 158 | WisDOT – 45 | Appendix C / Paragraph 1.9.2.1.5 | | T | Does this paragraph refer to the Offset fields in the Attribute table also? If so, then the "End-Offset" can equal the "Start-Offset" if the attribute data represents a point event, such as a sign location. The "End-Offset" still needs to be greater than the "Start-Offset" for length event data (such as pavement type). | If this section pertains to the Attribute table, then change it as described in the comment. | 1 – See panel's response to comment #157. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|--|--|---|--|
| 159 | NYSSDCW-11 | Pg. 109 | Line 1608 | G | Shouldn't be required, if another format is agreed upon. | Add sentence: "... unless exchanging entities mutually agree on an alternate format." | 4 – See panel's comment NTE #1. | 1 – Line #1607 will be changed to "Registry data must be exchangeable in at least a common ASCII format..." |
| 160 | FGDC-22 | P109 | L 1619 | T,G | FGDC will provide this? | This is a DOT responsibility. Clearly state this. | 5 – | 4 – The paragraph, from line #1619 to line #1622, will be removed. |
| 161 | FGDC-23 | P111 | L1632 | T,E | This phrase is not true with modern geodetic techniques "as most often understood in the establishment of geodetic control" | Delete. | 2 – The panel suggests rewriting the identified sentence, separating addition from improvement. | 4 – Sentences from line #1630 to #1639 will be removed. First sentence will remain. |
| 162 | FGDC-24 | P112 | Figure 21 | G,E | Hard to read figure 21 | Provide legible figure | 1 – | 1 – |
| 163 | Bentley-29 | Appendix D - 2 | 1646 | T | It is not clear as to what this table represents, as it does not conform to the FTRP Table specification in 2.3.1.1. The ID needs to be expanded to show what happens to the Authority value contained within the FTRP ID, the Status column needs to be added, and I do not see where the "Description & Accuracy Statement" column comes from. | Redo the table to conform to the FTRP Table layout specified in 2.3.1.1 | 1 – | 1 – Lines #1647& #1648 should be revised into text descriptions. Add FTRP table to text with two entries describing points "A" and "B". |
| 164 | FGDC-25 | P112 | L 1647 and 1648 | T,G | Estimated accuracy and precision of Lat & Long are not consistent. In "A" Lat is given to precision of 1m when it is +/-80 ft accuracy-- this seems inappropriate. In "B" long is given to precision of about 10m, yet accuracy is 11ft it, seems as though we need another significant digit because this is about an 8m shift between A & B. | Be consistent with accuracy and significant digits. Use dd.dddd for A use dd.ddddd for B. Provide guidance on precision, significant digits and accuracy. Consider adding a section to guide users of this standard. | 1 – The panel suggests making change as indicated in reviewers first sentence. However, Satisfactory guidance is already provided. | 1 – |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|---|---|--|---|
| 165 | NYSSDCW-12 | Pg. 112 | Fig. 21 | E | Figure is difficult to read. | Improve legibility of figure. | 1 – See panel’s response to comment #162. | 1 – |
| 166 | FGDC-26 | P1114 | Figure 23 | G, E | Figure is hard to understand too going on | Use several simpler figures to explain concepts in figure 23 | 2 – Panel suggest that the identified graphic quality should be improved. | 4 – Figure #23 will be simplified; also, example wording should reflect revisions to the standard in accordance to jurisdictional boundary statements. See comment #111. |
| 167 | WisDOT – 46 | Appendix D / Paragraph 1 | Line 1648 | T | Shouldn’t the ID be “A” instead of “B” to adhere that the comments of “...multi-part key (to) provides relative permanence...” (Line 484 & 485)? If the ID needs to be changed to “B”, then it appears to contradict with lines 484 & 485. | Change the ID from “B” to “A”. | 1 – See panel’s response to comment #163. | 1 – See comment #163. |
| 168 | Bentley-30 | Appendix D – 2 | Figure 22 | E | Typo | Change “FRSeg” to “FTSeg” | 1 – | 1 – |
| 169 | Bentley-31 | Appendix D – 2 | Figure 22 | T | Several FTSegs are incorrectly depicted as curved lines | Change them to straight lines in accordance with Appendix C 1.1.2.1 recommendations | 2 – See panel’s response to comment #112. | 4 – Figures are for illustrative purposes only, not necessarily in conformance with document symbology. |
| 170 | Bentley-32 | Appendix D – 3 | Figure 23 | T | The Figure does not comply with the display guidelines in section 1.1.2 of Appendix C. Proposed Change: Change curved FTSegs to straight lines in accordance with Appendix C 1.1.2.1 recommendations. Remove the arrowheads from the boundary lines for greater clarity (so they are not mistaken for roads). CONTINUED -> | The circle at P3 should be open and opaque. The circle at P2 should either be open and opaque (if D to E is one FTSeg) or it should be an open circle with lines inside if either D to E or P1 to P4 are split (but not both) The key showing an open, opaque circle should be labeled as “implicit” not explicit (See Bentley-23) | 2 – See panel’s response to comment #112. | 4 – See comment #169. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|--|---|---|---|
| 171 | WisDOT – 47 | Appendix D / Paragraph 3 | Figure 23 | T | Since FTRP_P2 has both terminal connectivity (with the FTSegs going from D to E) and explicit connectivity (with the FTSeg going from FTRP_P1 to FTRP_P4), how should FTRP_P2 be cartographically displayed? It would seem that a new cartographic display symbol is needed for FTRP that has both terminal and explicit connectivity. | Determine if the cartographic symbols for FTRPs satisfy all possible combinations and permutations of “connectivities” that an FTRP may have. | 2 – See panel’s response to comment #112. | 4 – See comment #169. |
| 172 | Bentley-33 | Appendix D - 4 | Figure 24 | E | Typo | Change “FRSeg_2” to “FTSeg_2” | 1 – | 1 – |
| 173 | Bentley-34 | Appendix D - 4 | 1681 | T | “implicitly” is specified as the connectivity type at P2. This means that FTSeg_1 continues to the right without splitting and FTSeg_3 and _4 are one FTSeg. This is also inconsistent with the symbology used (solid circle and opposing arrows on all four segments) and the mention of the “unnamed segment” in line 1685 | Change “implicitly” to “is terminally” | 2 – See panel’s responses to comments #112 and #60. | 4 – Within figure #24, remove arrow at right of P-2. Continue dotted line (for seg 2) to P-1. Remove text from line #1685, beginning with “as well...” |
| 174 | Bentley-35 | Appendix D – 4 | Table at lines 1689-1692 | T | Incomplete – actions missing | Add all Connectivity Table actions, e.g., add P3 connectivity to FTSeg_4 | 2 – The panel suggest changing line #1687 to: “The following transactions need to be recorded:” Finally, add P3 connectivity as suggested. | 1 – Table will be turned into text. Add action 5 to create an appropriate connectivity record. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|---|--------------------|---|--|---|--|
| 175 | WisDOT – 48 | Appendix D / Paragraph 5 | Lines 1701, 1702, 1703, 1704 Figure 25 | G | <p>The level of effort to reconcile FTRPs so that they are shared, and create & maintain the Connectivity and Equivalency tables between multiple authorities for the example in Figure 25 appears to be daunting.</p> <p>WisDOT has a concern that the resources involved to accomplish such as task will make it difficult to convince authorities to adopt this standard. (Also see comment “WisDOT – 44”)</p> | <p>See Proposed Change in comment “WisDOT – 1”.</p> <p>See Proposed Change in comment “WisDOT – 6”.</p> | 5 – | 1 – See comment #145. |
| 176 | FGDC-27 | P119 | L 1724 | E | “locational accuracy” | “horizontal accuracy” | 1 – | 1 – |
| 177 | Bentley-36 | Appendix D – 6.1 and 6.2 | 1715-1742 | T | The end state (i.e., either 4 or 5 FTRPs) should be the same in both cases. If the preference is to have separate levels of abstraction, then you need to be consistent and have 5 in both cases. | | 3 – The panel suggests labeling Figure #27 FTRPs consistently with Figure #26, and reflects change in text. Delete big circle in Fig #27. Remove box “Should a new FTRP be created?” Do not use color (throughout document). | 1 – Use Standard symbology instead of stars at nodes in figure #26 & #27. |
| 178 | Bentley-37 | Appendix D – 6.1 | 1726-30 | T | <p>There is no “FTRP Equivalency Table”, it is the “FTSeg and FTRP Equivalency Table”. FTSeg equivalencies are missing.</p> <p>Proposed Change: Change Table name to “FTSeg and FTRP Equivalency Table” in 1726 and 1728. CONTINUED -></p> | <p>Add “The developer should also create eight entries in the table to document the logical identity between S17 and Segments 1 and 6, S18 and Segments 4 and 5 ...” after line 1727. (See Bentley-18)</p> | 2 – Panel suggest changing the table title in line #768 (2.7.2) to “Equivalency Table.” Add reviewers suggested text with the exception “The developer could also create appropriate equivalencies...” | 2 – Title of equivalency tables to be revised as previously stated. |

FGDC Comment Sheet

| # | Organization | Paragraph/ subpara/ PG # | Figure/ Table/ line # | Type of comment | Comment | Proposed Change | Technical Review Panel Response to Comment and Proposed Change | Subcommittee Response to Technical Review Panel |
|-----|--------------|-----------------------------------|--------------------------|--------------------|---|---|--|--|
| 179 | Bentley-38 | Appendix D – 6.1 | 1726-30 | T | Is the implication of having dual levels of abstraction that you need to establish equivalencies for the entire framework? If not, how does one decide which FTRPs and which FTSegs are equivalenced? If so, good luck! | NCHRP 2027(2) claims that a single linear datum is sufficient, not one for each abstraction level. Re-consider whether this is appropriate for the framework as well. (See Bentley-0) | 4 – The Standard is not a linear datum (length is optional). | 1 – The purpose of equivalency is to facilitate multiple representations. |
| 180 | Bentley-39 | Appendix D – 6.2 | 1741 | T | Why is FTRP_1 chosen over the others? Is this deterministic? | | 3 – No, this is only an example. | 1 – |
| 181 | Subcommittee | | | T | | | | Search document for “data base” and replace with “database.” |
| 182 | Subcommittee | | | T | | | | Replace “by” with “be” in line #632. |